

N61165.AR.003949  
CNC CHARLESTON  
5090.3a

INITIAL GROUNDWATER ASSESSMENT REPORT FOR SITE 13 QUARTERS C ZONE B  
CNC CHARLESTON SC  
3/1/2000  
TETRA TECH

**Initial  
Ground-Water  
Assessment Report  
for  
Site 13, Quarters C**

**Zone B  
Charleston Naval Complex  
North Charleston, South Carolina**



**Southern Division  
Naval Facilities Engineering Command  
Contract Number N62467-94-D-0888  
Contract Task Order 0092**

March 2000

**INITIAL GROUND-WATER ASSESSMENT REPORT  
FOR  
SITE 13, QUARTERS C**

**ZONE B, CHARLESTON NAVAL COMPLEX  
NORTH CHARLESTON, SOUTH CAROLINA**

**COMPREHENSIVE LONG-TERM  
ENVIRONMENTAL ACTION NAVY (CLEAN) CONTRACT**

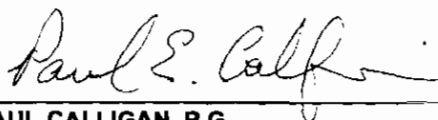
**Submitted to:  
Southern Division  
Naval Facilities Engineering Command  
2155 Eagle Drive  
North Charleston, South Carolina 29406**

**Submitted by:  
Tetra Tech NUS  
661 Andersen Drive  
Foster Plaza 7  
Pittsburgh, Pennsylvania 15220**

**CONTRACT NUMBER N62467-94-D-0888  
CONTRACT TASK ORDER 0092**

**MARCH 2000**

**PREPARED UNDER THE SUPERVISION OF:**



**PAUL CALLIGAN, P.G.  
TASK ORDER MANAGER  
TETRA TECH NUS, INC.  
TALLAHASSEE, FLORIDA**

**APPROVED FOR SUBMITTAL BY:**



**DEBBIE WROBLEWSKI  
PROGRAM MANAGER  
TETRA TECH NUS, INC.  
PITTSBURGH, PENNSYLVANIA**

## EXECUTIVE SUMMARY

Tetra Tech NUS, Inc. (TtNUS) has completed a Rapid Assessment for Site 13 which includes one underground storage tank (UST) system for Quarters C at Charleston Naval Complex (CNC) Zone B, in North Charleston, South Carolina. The UST provided fuel oil to the building's boiler for heating purposes. The 550-gallon steel UST was removed in November 1996. The Rapid Assessment was performed under the direction of the South Carolina Department of Health and Environmental Control Rapid Assessment guidance dated June 20, 1997, and approval letter dated April 7, 1999. After determining all laboratory analytical results were below the risk-based screening levels (RBSLs), the reporting format was reduced from a Rapid Assessment Report to an Initial Ground Water Assessment (IGWA) report format.

### **TtNUS performed the following actions during the Rapid Assessment:**

- Reviewed available Navy documents to identify potential sources and receptors for petroleum hydrocarbons in the vicinity, to evaluate public and private potable wells, to locate utility line areas, to locate nearby surface water bodies, and to determine surface hydrology and drainage.
- Reviewed the previously prepared Underground Storage Tank Assessment Report for UST Quarters C to determine boring locations and monitoring well placement.
- Conducted site survey to identify utilities and to construct a site plan.
- Installed seven shallow soil borings (8 to 12 feet below land surface [bls]) using direct push technology (DPT).
- Collected soil samples for field screening using an organic vapor analyzer.
- Installed three temporary piezometers inside selected soil borings.
- Collected soil and groundwater samples from DPT borings for on-site mobile laboratory screening analysis for benzene, toluene, ethyl benzene, and total xylenes (BTEX); naphthalene; and diesel range organics.
- Collected four soil samples from DPT borings and analyzed the samples at a fixed-base analytical laboratory for BTEX and naphthalene using USEPA Method 8260, PAHs using USEPA Method 8270.
- Collected soil samples from one DPT boring for grain size analysis, total organic carbon analysis using USEPA Method 415.1, and total recoverable petroleum hydrocarbon using USEPA Method 9071.
- Installed five shallow, permanent monitoring wells to 13.5 to 15.5 feet bls and one vertical delineation well to 36 feet bls using hollow stem auger.

- Collected groundwater samples from six newly installed, permanent monitoring wells for laboratory analysis at a fixed-base analytical laboratory.
- Collected groundwater samples for natural attenuation parameters from three monitoring wells.
- Analyzed groundwater samples for BTEX, methyl tert-butyl ether, and naphthalene using U.S. Environmental Protection Agency (USEPA) Method 8260 and polynuclear aromatic hydrocarbons (PAHs) using USEPA Method 8270.
- Surveyed monitoring well and top of casing elevations and collected depth to groundwater measurements to evaluate the groundwater flow direction.

### **Conclusions**

Soil samples were collected from five confirmation soil borings on June 14, 1999, and analyzed for BTEX and PAHs by a fixed-base laboratory. No chemicals of concern (CoCs) were detected in any soil boring sampled.

Groundwater samples were collected from six monitoring wells on July 24, August 3, and August 24, 1999. No dissolved CoCs were detected in any well sampled.

No soil or groundwater RBSLs were exceeded based on laboratory analysis of samples collected during the Rapid Assessment field effort. Because no RBSLs were exceeded, a site conceptual model or a Tier 2 evaluation was not required, thereby greatly reducing the reporting requirements. The IGWA was chosen as the method for reporting the findings of the Rapid Assessment field effort. It allows the necessary presentation for a site with no CoC concentrations in soil and groundwater exceeding the RBSLs.

### **Recommendation**

No further action is requested for Site 13, Quarters C, of Zone B, CNC because no CoCs were detected in any of the fixed-base soil or groundwater samples collected during the Rapid Assessment performed in 1999 and reported in the following IGWA.

## INITIAL GROUND-WATER ASSESSMENT REPORT

Facility Name: Charleston Naval Base, Zone B, Site 13, Quarters C Housing

Site ID Number: DHEC Site Identification # 00947

UST Owner or Operator's Name: U.S. Navy Southern Division (SouthDiv) Naval  
Facilities Engineering Command (NAVFAC)

Address: 2155 Eagle Drive, North Charleston, South Carolina 29406

Phone Number: 843-820-7307

Contractor: Tetra Tech NUS, Inc., Gregory D. Swanson, Cert. # 24  
P.E.

Address: 800 Oak Ridge Turnpike, Oak Ridge, TN 37830

Phone Number: (423) 483-9900

Well Driller: Rod Fuller, Custom Drilling – Hollow Stem Auger.  
Randolph Brand, Columbia Technologies-Direct Push. Cert. # 1240  
1485

### Receptor and Site Data

Please place a check in the appropriate answer block for each question:

Receptor Survey Questions	No	Yes*
Is there a drinking water supply well (public or private) or surface water supply intake within 1,000 feet of the UST?	X	
Are irrigation or other non-drinking water wells located within 1,000 feet of the UST?		X
Are there other potential receptors (i.e., utilities, surface waters, wetlands) less than 500 feet from the UST?		X

\* If "yes" provide additional information:

There are monitoring wells at additional sites within 1,000 feet of the former UST locations.

Noisette Creek is approximately 930 feet north of the site.

Site Vicinity Map in Appendix D shows underground utility lines within 500-foot radius of Site 13.

Quarters C has a partial basement.

Initial Ground-Water Assessment Report  
Page 2

SCDHEC Site ID # 00947

Were any water wells within 250 ft radius sampled? ☐ Yes ☒ No

Is the current use of the site and surrounding properties commercial, residential, agricultural, or industrial?

Site: Commercial & Industrial Adjacent Properties: Commercial & Industrial

### Soil and Monitoring Well Data

Primary Soil Type: Sandy silt, silty clay

Well Installation Method and Date: Hollow-stem auger; June 19, 1999

Development Method: Surge and purge using centrifugal pump

Soil Samples Obtained at 4 to 5, 5 to 6, 6 to 7 feet

**NOTE: Soil samples were collected from four soil borings. A duplicate sample was collected from one of the soil borings.**

#### SOIL ANALYTICAL DATA

Sample	Benzene (ug/kg)	Toluene (ug/kg)	Ethylbenzene (ug/kg)	Xylenes (ug/kg)	Naphthalene (ug/kg)
13SLB010607D	<7	<7	<7	<7	<7
13SLB010607	<6	<6	<6	<6	<6
13SLB020607	<6	<6	<6	<6	<6
13SLB040506	<6	<6	<6	<6	<6
13SLB060405	<6	<6	<6	<6	<6

Sample	Benzo(a)- anthracene (ug/kg)	Benzo(b)- fluoranthene (ug/kg)	Benzo(k)- fluoranthene (ug/kg)	Chrysene (ug/kg)	Dibenz(a,h)- anthracene (ug/kg)
13SLB010607D	<360	<360	<360	<360	<360
13SLB010607	<360	<360	<360	<360	<360
13SLB020607	<330	<330	<330	<330	<330
13SLB040506	<330	<330	<330	<330	<330
13SLB060405	<350	<360	<360	<360	<360

### Ground-Water Data

Depth to Ground Water: Ranged from 6.68 to 8.09  
feet

Well Purging/Sampling Method: Low flow using peristaltic pump

Date Sampled: 7/24/99, 8/3/99,  
8/24/99

Free Product Thickness: None

Soil/Water Disposal Method: Soil cuttings and purge water were containerized, labeled, and moved to a temporary staging area pending results of laboratory analyses and subsequent disposal by Charleston Naval Complex.

### GROUND-WATER ANALYTICAL DATA

Sample	Benzene (ug/L)	Toluene (ug/L)	Ethylbenzene (ug/L)	Xylenes (ug/L)	Naphthalene (ug/L)
13GLM0101	<5	<5	<5	<5	<5
13GLM0201	<5	<5	<5	<5	<5
13GLM0201D	<5	<5	<5	<5	<5
13GLM0301	<5	<5	<5	<5	<5
13GLM0401	<5	<5	<5	<5	<5
13GLM0501	<5	<5	<5	<5	<5
13GLM0601	<5	<5	<5	<5	<5

Sample	Benzo(a)- anthracene (ug/L)	Benzo(b)- fluoranthene (ug/L)	Benzo(k)- fluoranthene (ug/L)	Chrysene (ug/L)	Dibenz(a,h)- anthracene (ug/L)
13GLM0101	<10	<10	<10	<10	<10
13GLM0201	<10	<10	<10	<10	<10
13GLM0201D	<10	<10	<10	<10	<10
13GLM0301	<9	<9	<9	<9	<9
13GLM0401	<10	<10	<10	<10	<10
13GLM0501	<10	<10	<10	<10	<10
13GLM0601	<10	<10	<10	<10	<10



Initial Ground-Water Assessment Report  
Page 4

SCDHEC Site ID # 00947

Sample	EDB (ug/L)				
13GLM0101	<5				
13GLM0201	<5				
13GLM0201D	<5				
13GLM0301	<5				
13GLM0401	<5				
13GLM0501	<5				
13GLM0601	<5				

**Appendices**

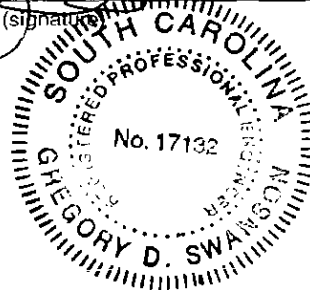
The appendices required for this report are as follows:

- Appendix A. Well Construction and Soil Boring Logs
- Appendix B. Laboratory Data
- Appendix C. Topographic Map With Site Location
- Appendix D. Site Base Maps

**NOTE: Because they are not needed, Appendices E, F, and G are not included.**

Report Completed By: Gregory D. Swanson (signature) Cert. # 24

Date: 1/26/00



## **APPENDIX A**

### **WELL CONSTRUCTION AND SOIL BORING LOGS**

BORING NO.: CNC13-MW01

## OVERBURDEN MONITORING WELL SHEET

PROJECT <u>Chas. Naval Complex</u>	LOCATION: <u>CNC13-MW01</u>	DRILLER <u>Custom Drilling</u>
PROJECT NO. <u>CNC13</u>	BORING <u>CNC13-MW01</u>	METHOD: <u>SPT HSA</u>
ELEVATION _____	DATE <u>6/19/99</u>	DRILLING _____
FIELD GEOLOGIST <u>Marty Ray</u>		DEVELOPMENT: <u>NA</u>

	ELEVATION OF TOP OF SURFACE CASING: _____
	ELEVATION OF TOP OF RISER PIPE: _____
	STICK-UP TOP OF SURFACE CASING: <u>Flush</u>
	STICK-UP RISER PIPE: <u>Flush</u>
	I.D. OF SURFACE CASING: <u>8" ID x 10" OD</u>
	TYPE OF SURFACE CASING: <u>Steel Cover with Bolt-on Lid (Flush) Pemco</u>
	TYPE OF SURFACE SEAL: <u>Concrete Pad (Quickcrete) 2 AL. x 2 AL. x 6 in.</u>
	RISER PIPE I.D.: <u>2-in.</u>
	TYPE OF RISER PIPE: <u>PVC, Sch. 40, Flush Threaded (F.T.)</u>
	BOREHOLE DIAMETER: <u>8.25-in</u>
TYPE OF SEAL: <u>Portland Cement Type I</u>	
ELEVATION / DEPTH OF SEAL: <u>1' 0"</u>	
TYPE OF SEAL: <u>"Choke Sand" Very Fine Quartz Sand (30/65)</u>	
DEPTH TOP OF SAND PACK: <u>2' 6"</u>	
ELEVATION / DEPTH TOP OF SCREEN: <u>3' 0"</u>	
TYPE OF SCREEN: <u>PVC, Sch. 40, F.T.</u>	
SLOT SIZE X LENGTH: <u>0.010-in x 10 ft</u>	
I.D. OF SCREEN: <u>2-in</u>	
TYPE OF SAND PACK: <u>Standard Sand (20/30) Quartz Sand</u>	
ELEVATION / DEPTH BOTTOM OF SCREEN: <u>13' 0"</u>	
ELEVATION / DEPTH BOTTOM OF SAND PACK: <u>13' 6"</u>	
TYPE OF BACKFILL BELOW OBSERVATION WELL: _____	
ELEVATION / DEPTH OF HOLE: <u>13' 6"</u>	

Type of Surface: \_\_\_\_\_

GROUND ELEVATION \_\_\_\_\_

FD (ppm)

- BK Grnd. = \_\_\_\_\_

- Driller BZ = \_\_\_\_\_

- In Hole = \_\_\_\_\_

( ) Drums of Soil \_\_\_\_\_

( ) DGW (10 min. after installation) \_\_\_\_\_

## OVERBURDEN MONITORING WELL SHEET

PROJECT	<u>CNC</u>	LOCATION:	<u>CNC13-MW02</u>	DRILLER	<u>Rod</u>
PROJECT NO.	<u>CNC13</u>	BORING	<u>CNC13-MW02</u>	METHOD:	<u>DPT</u>
ELEVATION		DATE	<u>6/19/99</u>	DRILLING	<u>HSA</u>
FIELD GEOLOGIST	<u>Marty Ray</u>			DEVELOPMENT:	<u>NA</u>

	ELEVATION OF TOP OF SURFACE CASING:	<u>flush</u>
	ELEVATION OF TOP OF RISER PIPE:	
	STICK-UP TOP OF SURFACE CASING:	
	STICK-UP RISER PIPE:	
	I.D. OF SURFACE CASING:	<u>8"</u>
	TYPE OF SURFACE CASING:	<u>steel man-hole with cover</u>
	TYPE OF SURFACE SEAL:	<u>concrete pad 2'x2'x6"</u>
	RISER PIPE I.D.:	<u>2"</u>
	TYPE OF RISER PIPE:	<u>sch 40 PVC</u>
	BOREHOLE DIAMETER:	<u>4.25"</u>
	TYPE OF SEAL:	<u>grout to 8" bbs</u>
	ELEVATION / DEPTH OF SEAL:	<u>1' 6"</u>
	TYPE OS SEAL:	<u>30/65</u>
	DEPTH TOP OF SAND PACK:	<u>2' 6"</u>
	ELEVATION / DEPTH TOP OF SCREEN:	<u>3' 0"</u>
TYPE OF SCREEN:	<u>sch 40 PVC</u>	
SLOT SIZE X LENGTH:	<u>10 5/16" x 10"</u>	
I.D. OF SCREEN:	<u>2"</u>	
TYPE OF SAND PACK:	<u>20/30 sand</u>	
ELEVATION / DEPTH BOTTOM OF SCREEN:	<u>13' 0"</u>	
ELEVATION / DEPTH BOTTOM OF SAND PACK:	<u>13' 6"</u>	
TYPE OF BACKFILL BELOW OBSERVATION WELL:	<u>20/30 sand</u>	
ELEVATION / DEPTH OF HOLE:	<u>13' 6"</u>	

BORING NO: CNC13-MW03

## OVERBURDEN MONITORING WELL SHEET

PROJECT <u>Chas. Naval Complex</u>	LOCATION: <u>CNC13-MW03</u>	DRILLER <u>Custom Drilling</u>
PROJECT NO. <u>CNC13</u>	BORING <u>CNC13-MW03</u>	METHOD: <u>BPT HSA</u>
ELEVATION _____	DATE <u>6/19/99</u>	DRILLING _____
FIELD GEOLOGIST <u>Marty</u>		DEVELOPMENT: <u>NA</u>

<p>Type of Surface:</p> <p>GROUND ELEVATION</p>	ELEVATION OF TOP OF SURFACE CASING: _____	
	ELEVATION OF TOP OF RISER PIPE: _____	
	STICK-UP TOP OF SURFACE CASING: <u>Flush</u>	
	STICK-UP RISER PIPE: <u>Flush</u>	
	I.D. OF SURFACE CASING: <u>8" ID x 10" OD</u>	
	TYPE OF SURFACE CASING: <u>Steel Cover with Bolt-on Lid (Flush) Pemco</u>	
	TYPE OF SURFACE SEAL: <u>Concrete Pad (Quickcrete) 2 AL. x 2 AL. x 6 in.</u>	
	RISER PIPE I.D.: <u>2-in.</u>	
	TYPE OF RISER PIPE: <u>PVC Sch. 40, Flush Threaded (F.T.)</u>	
	BOREHOLE DIAMETER: <u>8.25-in</u>	
TYPE OF SEAL: <u>Portland Cement Type I</u>		
ELEVATION / DEPTH OF SEAL: <u>1' 6"</u>		
TYPE OF SEAL: <u>"Choke Sand" Very Fine Quartz Sand (20/65)</u>		
DEPTH TOP OF SAND PACK: <u>3' 0"</u>		
ELEVATION / DEPTH TOP OF SCREEN: <u>4' 0"</u>		
TYPE OF SCREEN: <u>PVC, Sch. 40, F.T.</u>		
SLOT SIZE X LENGTH: <u>0.010-in x 10 ft</u>		
I.D. OF SCREEN: <u>2-in</u>		
TYPE OF SAND PACK: <u>Standard Sand (20/30)</u>		
ELEVATION / DEPTH BOTTOM OF SCREEN: <u>14' 0"</u>		
ELEVATION / DEPTH BOTTOM OF SAND PACK: <u>14' 6"</u>		
TYPE OF BACKFILL BELOW OBSERVATION WELL: <u>20/30 sand</u>		
ELEVATION / DEPTH OF HOLE: <u>14' 6"</u>		

FD (ppm)

- Bk Grnd. = 0.0

- Driller BZ = 0.0

- In Hole =

( ) Drums of Soil

( ) DGW (10 min. after installation)

BORING NO.: CNC13-MW04

## OVERBURDEN MONITORING WELL SHEET

PROJECT <u>CNC</u>	LOCATION: <u>CNC13-MW04</u>	DRILLER <u>Rod</u>
PROJECT NO. <u>CNC13</u>	BORING <u>CNC13-MW04</u>	METHOD: <u>BPT</u>
ELEVATION	DATE <u>6/19/99</u>	DRILLING <u>HSA</u>
FIELD GEOLOGIST <u>Marty Ray</u>		DEVELOPMENT: <u>NA</u>

	ELEVATION OF TOP OF SURFACE CASING:	<u>FLUSH</u>
	ELEVATION OF TOP OF RISER PIPE:	
	STICK-UP TOP OF SURFACE CASING:	
	STICK-UP RISER PIPE:	
	I.D. OF SURFACE CASING:	<u>8"</u>
	TYPE OF SURFACE CASING:	<u>steel man-hole with cover</u>
	TYPE OF SURFACE SEAL:	<u>concrete pad 2'x2'x6"</u>
	RISER PIPE I.D.:	<u>2"</u>
	TYPE OF RISER PIPE:	<u>Sch 40 PVC</u>
	BOREHOLE DIAMETER:	<u>4.25"</u>
	TYPE OF SEAL:	<u>grout to 8" b/s</u>
	ELEVATION / DEPTH OF SEAL:	<u>1' 6"</u>
	TYPE OF SEAL:	<u>30/65 sand seal</u>
	DEPTH TOP OF SAND PACK:	<u>2' 6"</u>
	ELEVATION / DEPTH TOP OF SCREEN:	<u>3' 10"</u>
TYPE OF SCREEN:	<u>Sch 40 PVC</u>	
SLOT SIZE X LENGTH:	<u>10 slot x 10'</u>	
I.D. OF SCREEN:	<u>2"</u>	
TYPE OF SAND PACK:	<u>20/30 sand</u>	
ELEVATION / DEPTH BOTTOM OF SCREEN:	<u>13' 10"</u>	
ELEVATION / DEPTH BOTTOM OF SAND PACK:	<u>13' 6"</u>	
TYPE OF BACKFILL BELOW OBSERVATION WELL:	<u>20/30 sand</u>	
ELEVATION / DEPTH OF HOLE:	<u>13' 6"</u>	

BORING NO.: CNC13-MW05

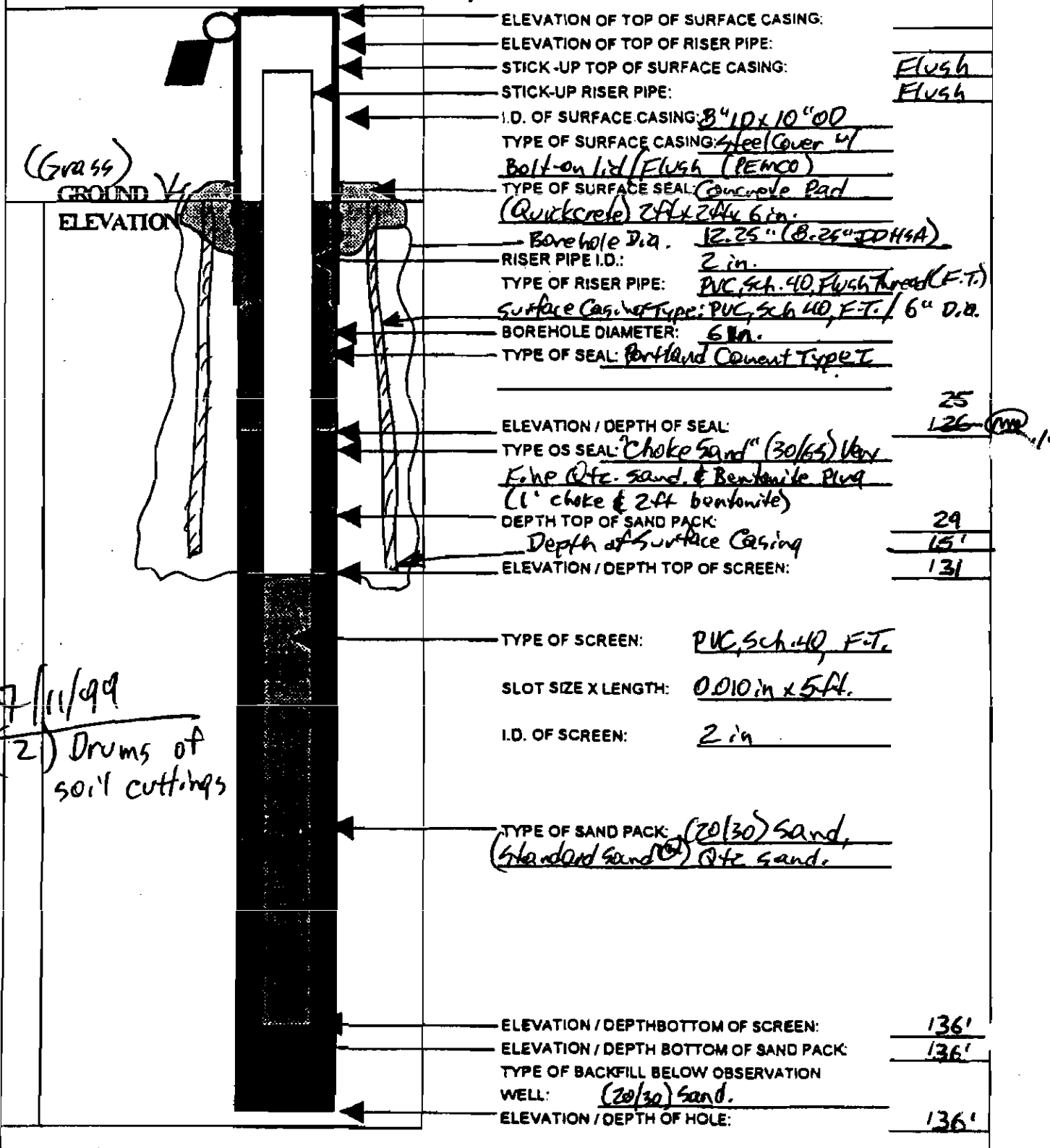
## OVERBURDEN MONITORING WELL SHEET

PROJECT	<u>CNC</u>	LOCATION:	<u>CNC13-MW05</u>	DRILLER	<u>Rod</u>
PROJECT NO.	<u>CNC13</u>	BORING	<u>CNC13-MW05</u>	METHOD:	<u>BPT</u>
ELEVATION		DATE	<u>6/19/99</u>	DRILLING	<u>ASA</u>
FIELD GEOLOGIST	<u>Marty Ray</u>			DEVELOPMENT:	<u>NA</u>

	ELEVATION OF TOP OF SURFACE CASING:	<u>F/06</u>
	ELEVATION OF TOP OF RISER PIPE:	
	STICK-UP TOP OF SURFACE CASING:	
	STICK-UP RISER PIPE:	
	I.D. OF SURFACE CASING:	<u>8" aa</u>
	TYPE OF SURFACE CASING:	<u>steel man-hole cover with top</u>
	TYPE OF SURFACE SEAL:	<u>concrete pad 2'x2'x6"</u>
	RISER PIPE I.D.:	<u>2"</u>
	TYPE OF RISER PIPE:	<u>Sch 40 PVC</u>
	BOREHOLE DIAMETER:	<u>4.25"</u>
	TYPE OF SEAL:	<u>grout to 6" b/s</u>
	ELEVATION / DEPTH OF SEAL:	<u>2' 0"</u>
	TYPE OF SEAL:	<u>30/65 sand</u>
	DEPTH TOP OF SAND PACK:	<u>3' 0"</u>
	ELEVATION / DEPTH TOP OF SCREEN:	<u>5' 0"</u>
TYPE OF SCREEN:	<u>Sch 40 PVC</u>	
SLOT SIZE X LENGTH:	<u>10 slot x 10'</u>	
I.D. OF SCREEN:	<u>2"</u>	
TYPE OF SAND PACK:	<u>20/30 sand</u>	
ELEVATION / DEPTH BOTTOM OF SCREEN:	<u>15' 0"</u>	
ELEVATION / DEPTH BOTTOM OF SAND PACK:	<u>15' 6"</u>	
TYPE OF BACKFILL BELOW OBSERVATION WELL:	<u>20/30 sand</u>	
ELEVATION / DEPTH OF HOLE:	<u>15' 6"</u>	

## OVERBURDEN MONITORING WELL SHEET

PROJECT Site 13/Ortug C/Zone B LOCATION: Site 13/Ortug C DRILLER Custom Drilling  
 PROJECT NO. 0141 BORING CNC13-MW06D METHOD: BPT B.254SA / 6" ID  
 ELEVATION \_\_\_\_\_ DATE 7/7/99 & 7/11/99 DRILLING Pod/Fuller  
 FIELD GEOLOGIST Mark Darnington / JAWD DEVELOPMENT: NA  
Method: B.25" HGA to set 6" PVC Surface Case / 6" M.R.





Page 6 of 1

**BORING NUMBER:**

DATE:

**GEOLOGIST:**

A-250 w/ G.P. 5400

**DRILLER:**

H.S. 2,  
} mod. stiff

\*\* Include monitor reading in 6 foot intervals @ borehole. Increase reading frequency if elevated response read.

Drilling Area  
Background (ppm): 2

Yes

No

Well I.D. #:

Page 1 of 1

BORING NUMBER: \_\_\_\_\_  
 DATE: \_\_\_\_\_  
 GEOLOGIST: \_\_\_\_\_  
 DRILLER: \_\_\_\_\_

CNC13 - B02  
5-18-99  
51500  
COLEMAN

Sample No. and Type or RQD	Depth (FL) or Run No.	Blows / 6" or RQD (%)	Sample Recovery / Sample Length	Lithology Change (Depth/FL) or Screened Interval	MATERIAL DESCRIPTION			U S C S	Remarks	PID/FID Reading (ppm)			
					Soil Density/Consistency or Rock Hardness	Color	Material Classification			Sample	Sampler BZ	Borehole	Driller BZ
0													
1	/			▼ EOB	Br.		Sandy silt		Dry	2			
2	/		"			"		"	2				
3	/		"			"		"	2				
4	/	3											
5	/				Br.		Sandy silt		moist	2			
6	/				"		" "		"	2			
7	/				Gray		Silt Org. clay		Wet	2			
8	/	2.5											
9	/				Gray mottled red, orange		Silt Org. clay		Wet	6			
10	/												
11	/												
12	/	4							Saturated				

Remarks:

Drilling Area  
Background (ppm): 2

Converted to Well: Yes

No

Well I.D. #:

Page 1 of 1

BORING NUMBER: CNC 13 - B03  
DATE: 5-18-99  
GEOLOGIST: SILCO  
DRILLER: COLEMAN

[illegible]

Include monitor reading in 6 foot intervals @ borehole. Increase reading frequency if elevated response read.

Drilling Area 3  
Background (ppm):

Converted to Well: Yes ☐ No ☒ Well I.D. #: \_\_\_\_\_

# BORING LOG

Page 1 of 1

PROJECT NAME: \_\_\_\_\_  
PROJECT NUMBER: \_\_\_\_\_  
DRILLING COMPANY: \_\_\_\_\_  
DRILLING RIG: 250 / 5400

BORING NUMBER: CNC 13 - B04  
DATE: 5-18-99  
GEOLOGIST: SISCO  
DRILLER: COLEMAN

Sample No. and Type or RQD	Depth (FL) or Run No.	Blows / 6" or RQD (%)	Sample Recovery / Sample Length	Lithology Change (Depth/Ft.) or Screened Interval	MATERIAL DESCRIPTION			U S C S *	Remarks	PID/FID Reading (ppm)			
					Soil Density/Consistency or Rock Hardness	Color	Material Classification			Sample	Sampler BZ	Borehole**	Driller BZ**
	<u>0</u>												
	<u>1</u>				<u>dk br</u>		<u>Sandy silt</u>		<u>DRY</u>	<u>2</u>			
	<u>2</u>				<u>cr. br.</u>				<u>"</u>	<u>2</u>			
	<u>3</u>				<u>" "</u>				<u>"</u>	<u>2</u>			
	<u>4</u>		<u>2.5</u>										
<u>S.</u>	<u>X 5</u>												
	<u>6</u>				<u>Orange Brown</u>		<u>Sandy silt</u>		<u>Moist</u>				
	<u>7</u>						<u>Sand</u>		<u>Wet</u>				
	<u>8</u>		<u>2.5</u>				<u>Silty clay</u>						
	<u>9</u>				<u>Cr.</u>		<u>Silty Org. clay</u>		<u>Saturated</u>				
	<u>10</u>				<u>Orange</u>		<u>Silty Org. Clay</u>		<u>"</u>				
<u>Silt.</u>	<u>X 11</u>				<u>Tan</u>		<u>"</u>		<u>"</u>				
	<u>12</u>		<u>3.5</u>		<u>Wt. H</u>		<u>Silty Org. Clay</u>		<u>"</u>				
				<u>EOB</u>									

Saturated  
Non  
Stiff  
to  
Stiff

\* When rock coring, enter rock brokenness.

\*\* Include monitor reading in 6 foot intervals @ borehole. Increase reading frequency if elevated response read.

Remarks: Slow recharge 6.5 to 10.5 ft.

Drilling Area  
Background (ppm): 2

Converted to Well: Yes        No X Well I.D. #:

Page 1 of 1

BORING NUMBER: *CN C13 805*

DATE: 5/25/99

GEOLOGIST: B D H

DRILLER: RB

5-1  
@  
0831

5-2  
@  
0835

Converted to Well:	Yes	No	Well I.D. #:
--------------------	-----	----	--------------



## Page 1 of 1

BORING NUMBER: CNC 13 B07

DATE: 5/25/99

GEOLOGIST: BPH

DRILLER: RB

\* When rock coring, enter rock brokenness.

\*\* Include monitor reading in 6 foot intervals @ borehole. Increase reading frequency if elevated response read.

Remarks: \_\_\_\_\_

Drilling Area  
Background (ppm):

Converted to Well:      Yes                  No                  Well I.D. #: \_\_\_\_\_

# BORING LOG

Page 1 of 2

PROJECT NAME: CNC-5, He 13  
 PROJECT NUMBER: 0144  
 DRILLING COMPANY: Coston Drilling  
 DRILLING RIG: Mobite B52

BORING NUMBER: CNC 13-mw06D  
 DATE: 7/11/99  
 GEOLOGIST: Mark Jamnitzer  
 DRILLER: Red Furlen

Sample No. and Type or RQD	Depth (Ft) or Run No.	Blows / 6" or RQD (%)	Sample Recovery / Sample Length	Lithology Change (Depth/Ft) or Screened Interval	MATERIAL DESCRIPTION			U S C S *	Remarks	Pneumo Reading (ppm)			
					Soil Density / Consistency / Rock Hardness	Color	Material Classification			Moisture	Specific Gravity	Grain Size	Grain Size
0	0-												
①	16	4 1/2	12/24										
	↓	2 1/2											
	18												
②	20	2 5/8	12/24										
	↓	7 7/8											
	22												
③	25	7 10/16	12/24										
	↓	11 1/2											
	27												
④	30	6 10/16	12/24										
	↓	10 1/4											
	32												
⑤	32	5 7/8	18/24										
	↓	6 3/8											
	34												
⑥	34	2 1/4	24/24										
	↓	8 6/8											
	36												

\* When rock coring, enter rock brokenness (36' Borehole terminated)  
 \*\* Include monitor reading in 8 foot intervals @ borehole. Increase reading frequency if elevated response read.  
 Remarks: @ 27' bls - Drilling mud added to drill fluid (25 lb./50-gal.) Drilling Area Background (ppm): 0.0  
 Converted to Well: Yes ☒ No ☐ Well I.D. #: CNC 13-mw06D



# BORING LOG

Page 2 of 2

PROJECT NAME: CNC/site 13/OrtsC  
 PROJECT NUMBER: 0141  
 DRILLING COMPANY: Custom Drilling Services  
 DRILLING RIG: Mobile B-57

BORING NUMBER: CNC13-MW06D  
 DATE: 7/2/99  
 GEOLOGIST: Mark Darrington  
 DRILLER: Red.

Sample No. and Type or ROD	Depth (FT) or Run No.	Blows / 6" or ROD (%)	Sample Recovery / Sample Length	Lithology Change (Depth Ft.) or Screened Interval	MATERIAL DESCRIPTION		U S C S	Remarks	PEEPID Reading (ppm)
					Note: Due to overhanging limb of large oak tree @ UST location, using drilling rig with mast mounted to be in upright position upright. Crew broke mast down to allow drilling, but with no mast, no split spoon samples can be collected.				
					- To drill to 15 ft. b/s. If soils have petro. odor, will drill to 20 ft & 25 ft, respectively & evaluate, before getting 6" casing. If @ 15 ft, soil cuttings have no petro. odor, 6" casing will be set @ 15 ft. (approx 3 ft lower than bottom of well for surrounding shallow wells.				
					Tan Silty sand to sand soil cuttings. WF-M grain, well sorted, moist - sat. no petro. odors or discolor.				
					* Borehole Term. @ 15 ft. b/s. (app. for hole cut at 25 ft. HSAE)				

\* When rock coring, enter rock breakness.

\*\* Include monitor reading in 6 foot intervals @ borehole. Increase reading frequency if elevated response read.

Remarks:

Drilling Area  
 Background (ppm): 0.0

Converted to Well: Yes ☒ No ☐ Well I.D. #: CNC13-MW06D

## **APPENDIX B**

### **LABORATORY DATA**



September 14, 1999

Mr. Paul Calligan

Tetra Tech Nus

1401 Oven Park Dr., Suite 102

Tallahassee, FL 32308

RE: Katahdin Lab Number: WP3500  
Project ID: CNC Charleston  
Project Manager: Ms. Andrea J. Colby  
Sample Receipt Date(s): 8/4/99

Dear Mr. Calligan:

Please find enclosed the following information:

- \* Report of Analysis
- \* Quality Control Data Summary
- \* Chain of Custody
- \* Confirmation

Should you have any questions or comments concerning this Report of Analysis, please do not hesitate to contact the project manager listed above. This cover letter is an integral part of the ROA.

We appreciate your continued use of our laboratory and look forward to working with you in the future. The following signature indicates technical review and acceptance of the data.

Sincerely,

KATAHDIN ANALYTICAL SERVICES

May S. Monell  
Authorized Signature

9.14.99  
Date



**SDG NARRATIVE  
KATAHDIN ANALYTICAL SERVICES  
TETRA TECH NUS  
CASE CNC CHARLESTON**

**Sample Receipt**

The following samples were received on August 4, 1999 and were logged in under Katahdin Analytical Services work order number WP3500 for a hardcopy due date of September 3, 1999.

<u>KATAHDIN</u> <u>Sample No.</u>	<u>TTNUS</u> <u>Sample Identification</u>
WP3500-1	13GLM0101
WP3500-2	13GLM0301
WP3500-3	13GLM0501
WP3500-4	13TL01001

The samples were logged in for the analyses specified on the chain of custody form. All problems encountered and resolved during sample receipt have been documented on the applicable chain of custody forms.

Sample analyses have been performed by the methods as noted herein.

**Volatile Organic Analysis**

Four aqueous samples were received by the Katahdin Analytical Services, Inc. GC/MS laboratory on August 4, 1999 and were specified to be analyzed by USEPA method 8260B for the analytes benzene, toluene, ethylbenzene, xylenes, MTBE, naphthalene, and EDB.

Analyses for this workorder were performed on the 5972-S instrument. A VSTD050 (50 ppb standard) was used for the continuing calibration standard. Internal standard and surrogate compounds were also spiked at 50 ppb.

Batch QC (VBLK, and LCS) was performed in each twelve-hour window. Results are included in this data package. The LCS QC samples were spiked with the entire list of compounds quantitated for at 50 ppb. No matrix spike/matrix spike duplicate was performed on any sample in this workorder.

Several manual integrations were performed due to split peaks; all have been flagged with a "M" (software-generated) on the pertinent quantitation reports. All "M" flags have been dated and initialed by the analyst performing the integration. In addition, all "M" flags have been reviewed and approved by the GC/MS supervisor. Copies of each manual integration are included in the pertinent quantitation reports.

No other protocol deviations were noted by the volatile organics staff.

#### Semivolatile Organics Analysis

Three aqueous samples were received by Katahdin Analytical Services laboratory on August 4, 1999 for analysis in accordance with 8270C for a client specified PAH list of analytes.

Extraction of the samples occurred following USEPA method 3510 on August 9, 1999. A laboratory control spike, consisting of all PAH analytes spiked into organic free water, was extracted in the batch.

Several manual integrations were performed due to split peaks; all have been flagged with a "M" by the data system. All manual integrations have been dated and initialed by the responsible analyst. Copies of each manual integration are included in the data package. All manual integrations have been reviewed and approved by the GC/MS supervisor.

No other protocol deviations were noted by the semivolatiles organics staff.

#### Wet Chemistry Analysis

For work order WP3550 analyses for Nitrate (E300) and Sulfate (E300) were performed according to the U.S. EPA "Methods for the Determination of Inorganic Substances in Environmental Samples", EPA 600/R-93/100, August 1993. All samples were run within laboratory hold time.

The wet chemistry staff noted no protocol deviations.

KATAH ANALYTICAL SERVICES, INC.  
SAMPLE RECEIPT CONDITION REPORT  
Tel. (207) 874-2400  
Fax (207) 775-4029

LAB (WORK ORDER) # WP 3495 / WP 3500

PAGE: 1 OF 2

COOLER: 1 OF 2

COC# —

SDG# —

DATE / TIME RECEIVED: 8-4-99 ~ 0900

DELIVERED BY: FED EX

RECEIVED BY: DKR

LIMS ENTRY BY: BEK

LIMS REVIEW BY / PM: AKC

CLIENT: T-Tech NUS

PROJECT: CNC CHARLESTON

	YES	NO	EXCEPTIONS
1. CUSTODY SEALS PRESENT / INTACT?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2. CHAIN OF CUSTODY PRESENT IN THIS COOLER?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3. CHAIN OF CUSTODY SIGNED BY CLIENT?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4. CHAIN OF CUSTODY MATCHES SAMPLES?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5. TEMPERATURE BLANKS PRESENT?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
6. SAMPLES RECEIVED AT 4°C +/- 2?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
ICE / ICE PACKS PRESENT (Y or N)?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
7. VOLATILES FREE OF HEADSPACE?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
8. TRIP BLANK PRESENT IN THIS COOLER	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
9. PROPER SAMPLE CONTAINERS AND VOLUME?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
10. SAMPLES WITHIN HOLD TIME UPON RECEIPT?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
11. SAMPLES PROPERLY PRESERVED <sup>(1)</sup> ?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
12. CORRECTIVE ACTION REPORT FILED?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	N/A

COMMENTS

RESOLUTION

TEMP BLANK TEMP (°C) = 1.6

AKC notified Van Haligan by fax 8/4/99

COOLER TEMP (°C) = NA

(RECORD COOLER TEMP ONLY IF TEMP BLANK IS NOT PRESENT)

13. ANALYTICAL PROGRAMS (CIRCLE ONE) COMMERCIAL CLP HAZWRAP NFESC ACOE AFCEE OTHER (STATE OF ORIGIN):

LOG - IN NOTES<sup>(1)</sup>: Dissolved methane analysis added to samples 13GLM0101, 13GLM0301 and 13GLM0501 per client request on 8/6/99

<sup>(1)</sup> Use this (and additional sheets if necessary) to document samples that are received broken, compromised, C-O-C discrepancies, radiation checks, residual chlorine check, residual pH. If samples required pH adjustment, record volume and type of preservative added.

compromised, C-O-C discrepancies, radiation checks, residual chlorine check, residual pH

pH

KATA ANALYTICAL SERVICES, INC.  
SAMPLE RECEIPT CONDITION REPORT  
Tel. (207) 874-2400  
Fax (207) 775-4029

LAB (WORK ORDER) #

WP 3495 / WP 3500

PAGE:

2 OF 2

COOLER:

2 OF 2

COC#

SDG#

DATE / TIME RECEIVED:

8-4-99 ~ 0900

DELIVERED BY:

FED CV

RECEIVED BY:

BKA

LIMS ENTRY BY:

BKA

LIMS REVIEW BY / PM:

AC

CLIENT:

T-TECH NUS

PROJECT:

CNC CHARLESTON

- |  | YES                                 | NO                                  | EXCEPTIONS               |
|--|-------------------------------------|-------------------------------------|--------------------------|
| 1. CUSTODY SEALS PRESENT / INTACT?                                 | <input checked="" type="checkbox"/> | <input type="checkbox"/>            | <input type="checkbox"/> |
| 2. CHAIN OF CUSTODY PRESENT IN THIS COOLER?                        | <input type="checkbox"/>            | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| 3. CHAIN OF CUSTODY SIGNED BY CLIENT?                              | <input checked="" type="checkbox"/> | <input type="checkbox"/>            | <input type="checkbox"/> |
| 4. CHAIN OF CUSTODY MATCHES SAMPLES?                               | <input checked="" type="checkbox"/> | <input type="checkbox"/>            | <input type="checkbox"/> |
| 5. TEMPERATURE BLANKS PRESENT?                                     | <input checked="" type="checkbox"/> | <input type="checkbox"/>            | <input type="checkbox"/> |
| 6. SAMPLES RECEIVED AT 4°C ± 2?<br>ICE / ICE PACKS PRESENT Y or N? | <input type="checkbox"/>            | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| 7. VOLATILES FREE OF HEADSPACE?                                    | <input checked="" type="checkbox"/> | <input type="checkbox"/>            | <input type="checkbox"/> |
| 8. TRIP BLANK PRESENT IN THIS COOLER                               | <input type="checkbox"/>            | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| 9. PROPER SAMPLE CONTAINERS AND VOLUME?                            | <input checked="" type="checkbox"/> | <input type="checkbox"/>            | <input type="checkbox"/> |
| 10. SAMPLES WITHIN HOLD TIME UPON RECEIPT?                         | <input checked="" type="checkbox"/> | <input type="checkbox"/>            | <input type="checkbox"/> |
| 11. SAMPLES PROPERLY PRESERVED <sup>(1)</sup> ?                    | <input checked="" type="checkbox"/> | <input type="checkbox"/>            | <input type="checkbox"/> |
| 12. CORRECTIVE ACTION REPORT FILED?                                | <input type="checkbox"/>            | <input checked="" type="checkbox"/> | N/A                      |

COMMENTS

RESOLUTION

TEMP BLANK TEMP (°C) =

1.4

COOLER TEMP (°C) =

NA

(RECORD COOLER TEMP ONLY IF TEMP BLANK IS NOT PRESENT)

PL notified and Van Callegan  
by fax 8/4/99

13. ANALYTICAL PROGRAMS (CIRCLE ONE) COMMERCIAL CLP HAZWRAP NFESC ACOE AFCEE OTHER (STATE OF ORIGIN):

LOG - IN NOTES<sup>(1)</sup>:

000023

<sup>(1)</sup> Use this space (and additional sheets if necessary) to document samples that are received broken or compromised, C-O-C discrepancies, radiation checks, residual chlorine check, results of pH check if required. If samples required pH adjustment, record volume and type of preservative added.



340 County Road No. 5  
P.O. Box 720  
Westbrook, ME 04098  
Tel: (207) 874-2400  
Fax: (207) 775-4029

# CHAIN of CUSTODY

PLEASE PRINT IN PEN

Page \_\_\_\_ of \_\_\_\_

Client Tetra Tech NUS Contact Brynn Howze Phone # (843) 584 4925 Fax # ( )  
Address 121 Ave H City N. Charleston State SC Zip Code 29406

Purchase Order # \_\_\_\_\_ Proj. Name / No. \_\_\_\_\_ Katahdin Quote # \_\_\_\_\_

Bill (if different than above) \_\_\_\_\_ Address \_\_\_\_\_

Sampler (Print / Sign) Jeff Alexander Copies To: \_\_\_\_\_

LAB USE ONLY WORK ORDER #: WP3495 / WP3496 ANALYSIS AND CONTAINER TYPE PRESERVATIVES  
KATAHDIN PROJECT MANAGER (S) WP3500 (AQ)

REMARKS: \_\_\_\_\_

SHIPPING INFO: ☒ FED EX ☐ UPS ☐ CLIENT

AIRBILL NO: 813402904462

TEMP °C \_\_\_\_\_ ☐ TEMP BLANK ☐ INTACT ☐ NOT INTACT

* Sample Description	Date / Time coll'd	Matrix	No. of Cntrs.	Filt. YOYON	Filt. YOYON	Filt. YOYON	Filt. YOYON	Filt. YOYON	Filt. YOYON	Filt. YOYON	Filt. YOYON	Filt. YOYON	Filt. YOYON	Filt. YOYON
<u>13GLM0101</u>	<u>8/3/99/1123</u>	<u>W</u>	<u>6</u>	<u>3</u>	<u>2</u>	<u>1</u>								
<u>13GLM0301</u>	<u>8/3/99/1131</u>	<u>W</u>	<u>6</u>	<u>3</u>	<u>2</u>	<u>1</u>								
<u>13GLM0501</u>	<u>8/3/99/1105</u>	<u>W</u>	<u>6</u>	<u>3</u>	<u>2</u>	<u>1</u>								
<u>13TL01001</u>	<u>8/3/99/1730</u>	<u>W</u>	<u>2</u>	<u>2</u>										
<u>12SLP050304</u>	<u>8/3/99/1115</u>	<u>S</u>	<u>5</u>											
<u>42SLP060304</u>	<u>8/3/99/1438</u>	<u>S</u>	<u>5</u>											
<u>42SLP070405</u>	<u>1/1455</u>	<u>S</u>	<u>5</u>											
<u>42SLP080607</u>	<u>1/1510</u>	<u>S</u>	<u>5</u>											
<u>42SLP090405</u>	<u>1/1545</u>	<u>S</u>	<u>5</u>											
<u>42SLP100304</u>	<u>1/1600</u>	<u>S</u>	<u>5</u>											
<u>42SLP110405</u>	<u>1/1612</u>	<u>S</u>	<u>5</u>											
<u>/</u>	<u>/</u>													
<u>/</u>	<u>/</u>													
<u>/</u>	<u>/</u>													
<u>/</u>	<u>/</u>													
<u>/</u>	<u>/</u>													
<u>/</u>	<u>/</u>													

COMMENTS

Relinquished By: (Signature) <u>[Signature]</u>	Date / Time <u>8/3/99 1100</u>	Received By: (Signature) <u>[Signature]</u>	Relinquished By: (Signature) <u>[Signature]</u>	Date / Time <u>8-4-99 0900</u>	Received By: (Signature) <u>[Signature]</u>
Relinquished By: (Signature)	Date / Time	Received By: (Signature)	Relinquished By: (Signature)	Date / Time	Received By: (Signature)



KATAHDIN ANALYTICAL SERVICES, INCORPORATED  
New England-ME Laboratory (207) 874-2400  
CONFIRMATION

Page 1

ORDER NO WP-3500

Project Manager: Andrea J. Colby

RT TO: PAUL CALLIGAN  
Tetra Tech NUS  
1401 Oven Park Dr., Suite 102  
Tallahassee, FL 32308

ORDER DATE: 08/04/99  
PHONE: 850/385-9899  
FAX: 850/385-9860  
DUE: 03 SEP  
FAC.ID: CNC CHARLESTON

INVOICE: ACCOUNTS PAYABLE  
TETRA TECH NUS, INC.  
FOSTER PLAZA 7, 661 ANDERSEN DR.  
PITTSBURGH, PA 15220

PHONE: 412/921-7090  
PO: N7912-P99264  
PROJECT: CTO#68

SAMPLED BY: J.ALEXANDER

DELIVERED BY: FEDEX

DISPOSE: AFTER 03 OCT

ITEM	LOG NUMBER	SAMPLE DESCRIPTION	SAMPLED DATE/TIME	RECEIVED	MATRIX
1	WP3500-1	13GLM0101	03 AUG 1123	04 AUG	AQ
	WP3500-2	13GLM0301	03 AUG 1131		
	WP3500-3	13GLM0501	03 AUG 1105		

DETERMINATION	METHOD	QTY	PRICE	AMOUNT
Volatile Organics by 8260B	SW8260	3	75.00	225.00
Polynuclear Aromatic Hydrocarbons	EPA 8270	3	125.00	375.00
Nitrogen, Nitrate (as N)	E300	3	30.00	90.00
Sulfate (as SO4)	E300	3	0.00	0.00
GC Subcontract		3	95.00	285.00
TOTALS		3	325.00	975.00

LOG NUMBER	SAMPLE DESCRIPTION	SAMPLED DATE/TIME	RECEIVED	MATRIX
2 WP3500-4	13TL01001	03 AUG 1730	04 AUG	AQ

DETERMINATION	METHOD	QTY	PRICE	AMOUNT
Volatile Organics by 8260B	SW8260	1	75.00	75.00

ORDER NOTE: QC-IV NFESC,,  
DD(KAS007QC-DB3)  
CNC CHARLESTON  
REPORT COPY: MS. LEE LECK  
TETRATECH NUS  
FOSTER PLAZA 7  
661 ANDERSEN DR.  
PITTSBURG, PA 15220  
REPORT AND DISK

FINAL PAGE

val 8/9/99

ICE: With Report

TOTAL ORDER AMOUNT \$1,050.00  
This is NOT an Invoice

AJC/BKR/KP/WEST.AJC(dw)/WEST.KP(dw)

08-09Please contact KATAHDIN ANALYTICAL SERVICES promptly if you have any questi

0000025

CLIENT: PAUL CALLIGAN  
Tetra Tech NUS  
1401 Oven Park Dr., Suite 102  
Tallahassee, FL 32308

Lab Number : WP-3500-1  
Report Date: 09/14/99  
PO No. : N7912-P99264  
Project : CTO#68

WIC#: CNC CHARLESTON

REPORT OF ANALYTICAL RESULTS

Page 1 of 3

SAMPLE DESCRIPTION	MATRIX		SAMPLED BY		SAMPLED DATE RECEIVED			
13GLM0101	Aqueous		J.ALEXANDER		08/03/99	08/04/99		
PARAMETER	RESULT	UNITS	DF	*PQL	METHOD	ANALYZED	BY	NOTES
Nitrogen, Nitrate (as N)	<0.050	mg/L	1.0	0.050	E300	08/04/99	CF	
Sulfate (as SO4)	28.	mg/L	4.0	1.0	E300	08/14/99	CF	

\* PQL (Practical Quantitation Level) represents laboratory reporting limits and may not reflect sample-specific reporting limits. Sample-specific limits are indicated by results annotated with '<' values.

09/14/99

LJO/baeajc(dw)/msm

PH04N3W1

CC: MS. LEE LECK

TETRATECH NUS

FOSTER PLAZA 7

661 ANDERSEN DR.

0000004



# KATAHDIN ANALYTICAL SERVICES

## REPORT OF ANALYTICAL RESULTS

Client: PAUL CALLIGAN  
Tetra Tech NUS  
1401 Owen Park Dr.  
Suite 102  
Tallahassee, FL 32308

Proj. ID: CNC CHARLESTON

Lab Number: WP3500-1  
SDG: WP3500  
Report Date: 9/13/99  
PO No.: N7912-P99264  
Project: CTO#68  
% Solids: N/A  
Method: EPA 8270  
Date Analyzed: 8/13/99

Sample Description	Matrix	Sampled Date	Rec'd Date	Ext. Date	Ext'd By	Ext. Method	Analyst
13GLM0101	AQ	8/3/99	8/4/99	8/9/99	DS	EPA 3510	KRT

Compound	Result	Units	DF	Sample PQL	Method PQL
NAPHTHALENE	<10	ug/L	1.0	10	10
2-METHYLNAPHTHALENE	<10	ug/L	1.0	10	10
ACENAPHTHYLENE	<10	ug/L	1.0	10	10
ACENAPHTHENE	<10	ug/L	1.0	10	10
FLUORENE	<10	ug/L	1.0	10	10
PHENANTHRENE	<10	ug/L	1.0	10	10
ANTHRACENE	<10	ug/L	1.0	10	10
FLUORANTHENE	<10	ug/L	1.0	10	10
PYRENE	<10	ug/L	1.0	10	10
BENZO[A]ANTHRACENE	<10	ug/L	1.0	10	10
CHRYSENE	<10	ug/L	1.0	10	10
BENZO[B]FLUORANTHENE	<10	ug/L	1.0	10	10
BENZO[K]FLUORANTHENE	<10	ug/L	1.0	10	10
BENZO[A]PYRENE	<10	ug/L	1.0	10	10
INDENO[1,2,3-CD]PYRENE	<10	ug/L	1.0	10	10
DIBENZ[A,H]ANTHRACENE	<10	ug/L	1.0	10	10
BENZO[G,H,I]PERYLENE	<10	ug/L	1.0	10	10
NITROBENZENE-D5	62	%	1.0		
2-FLUOROBIPHENYL	63	%	1.0		
TERPHENYL-D14	76	%	1.0		

Report Notes:

0000005



# KATAHDIN ANALYTICAL SERVICES

## REPORT OF ANALYTICAL RESULTS

Client: PAUL CALLIGAN  
Tetra Tech NUS  
1401 Owen Park Dr.  
Suite 102  
Tallahassee, FL 32308  
Proj. ID: CNC CHARLESTON

Lab Number: WP3500-1  
SDG: WP3500  
Report Date: 9/13/99  
PO No.: N7912-P99264  
Project: CTO#68  
% Solids: N/A  
Method: SW8260  
Date Analyzed: 8/10/99

Sample Description	Matrix	Sampled Date	Rec'd Date	Ext. Date	Ext'd By	Ext. Method	Analyst
13GLM0101	AQ	8/3/99	8/4/99	8/10/99	KMC	5030	KMC

Compound	Result	Units	DF	Sample PQL	Method PQL
BENZENE	<5	ug/L	1.0	5	5
TOLUENE	<5	ug/L	1.0	5	5
1,2-DIBROMOETHANE	<5	ug/L	1.0	5	5
ETHYLBENZENE	<5	ug/L	1.0	5	5
NAPHTHALENE	<5	ug/L	1.0	5	5
MTBE	<5	ug/L	1.0	5	5
TOTAL XYLENES	<5	ug/L	1.0	5	5
DIBROMOFLUOROMETHANE	102	%	1.0		
1,2-DICHLOROETHANE-D4	101	%	1.0		
TOLUENE-D8	107	%	1.0		
P-BROMOFLUOROBENZENE	94	%	1.0		

Report Notes:

0000006



CLIENT: PAUL CALLIGAN  
Tetra Tech NUS  
1401 Oven Park Dr., Suite 102  
Tallahassee, FL 32308

Lab Number : WP-3500-2  
Report Date: 09/14/99  
PO No. : N7912-P99264  
Project : CTO#68

WIC#: CNC CHARLESTON

REPORT OF ANALYTICAL RESULTS

Page 2 of 3

SAMPLE DESCRIPTION	MATRIX		SAMPLED BY		SAMPLED DATE RECEIVED			
13GLM0301	Aqueous		J.ALEXANDER		08/03/99	08/04/99		
PARAMETER	RESULT	UNITS	DF	*PQL	METHOD	ANALYZED	BY	NOTES
Nitrogen, Nitrate (as N)	<0.050	mg/L	1.0	0.050	E300	08/04/99	CF	
Sulfate (as SO4)	20.	mg/L	2.0	1.0	E300	08/14/99	CF	

\* PQL (Practical Quantitation Level) represents laboratory reporting limits and may not reflect sample-specific reporting limits. Sample-specific limits are indicated by results annotated with '<' values.

09/14/99

LJO/baeajc(dw)/msm

PH04N3W1

CC: MS. LEE LECK

TETRATECH NUS

FOSTER PLAZA 7

661 ANDERSEN DR.



# KATAHDIN ANALYTICAL SERVICES

## REPORT OF ANALYTICAL RESULTS

Client: PAUL CALLIGAN  
Tetra Tech NUS  
1401 Oven Park Dr.  
Suite 102  
Tallahassee, FL 32308  
Proj. ID: CNC CHARLESTON

Lab Number: WP3500-2  
SDG: WP3500  
Report Date: 9/13/99  
PO No. : N7912-P99264  
Project: CTO#68  
% Solids: N/A  
Method: EPA 8270  
Date Analyzed: 8/11/99

Sample Description	Matrix	Sampled Date	Rec'd Date	Ext. Date	Ext'd By	Ext. Method	Analyst
13GLM0301	AQ	8/3/99	8/4/99	8/9/99	DS	EPA 3510	KRT

Compound	Result	Units	DF	Sample PQL	Method PQL
NAPHTHALENE	<9	ug/L	1.0	9	10
2-METHYLNAPHTHALENE	<9	ug/L	1.0	9	10
ACENAPHTHYLENE	<9	ug/L	1.0	9	10
ACENAPHTHENE	<9	ug/L	1.0	9	10
FLUORENE	<9	ug/L	1.0	9	10
PHENANTHRENE	<9	ug/L	1.0	9	10
ANTHRACENE	<9	ug/L	1.0	9	10
FLUORANTHENE	<9	ug/L	1.0	9	10
PYRENE	<9	ug/L	1.0	9	10
3-BENZO[A]ANTHRACENE	<9	ug/L	1.0	9	10
CHRYSENE	<9	ug/L	1.0	9	10
BENZO[B]FLUORANTHENE	<9	ug/L	1.0	9	10
BENZO[K]FLUORANTHENE	<9	ug/L	1.0	9	10
BENZO[A]PYRENE	<9	ug/L	1.0	9	10
INDENO[1,2,3-CD]PYRENE	<9	ug/L	1.0	9	10
DIBENZO[A,H]ANTHRACENE	<9	ug/L	1.0	9	10
BENZO[G,H,I]PERYLENE	<9	ug/L	1.0	9	10
NITROBENZENE-D5	65	%	1.0		
2-FLUOROBIPHENYL	66	%	1.0		
TERPHENYL-D14	105	%	1.0		

Report Notes:

0000008



# KATAHDIN ANALYTICAL SERVICES

## REPORT OF ANALYTICAL RESULTS

Client: PAUL CALLIGAN  
Tetra Tech NUS  
1401 Owen Park Dr.  
Suite 102  
Tallahassee, FL 32308

Proj. ID: CNC CHARLESTON

Lab Number: WP3500-2  
SDG: WP3500  
Report Date: 9/13/99  
PO No.: N7912-P99264  
Project: CTO#68  
% Solids: N/A  
Method: SW8260  
Date Analyzed: 8/10/99

Sample Description	Matrix	Sampled Date	Rec'd Date	Ext. Date	Ext'd By	Ext. Method	Analyst
13GLM0301	AQ	8/3/99	8/4/99	8/10/99	KMC	5030	KMC

Compound	Result	Units	DF	Sample PQL	Method PQL
BENZENE	<5	ug/L	1.0	5	5
TOLUENE	<5	ug/L	1.0	5	5
1,2-DIBROMOETHANE	<5	ug/L	1.0	5	5
ETHYLBENZENE	<5	ug/L	1.0	5	5
NAPHTHALENE	<5	ug/L	1.0	5	5
MTBE	<5	ug/L	1.0	5	5
TOTAL XYLENES	<5	ug/L	1.0	5	5
DIBROMOFLUOROMETHANE	104	%	1.0		
DICHLOROETHANE-D4	106	%	1.0		
TOLUENE-D8	108	%	1.0		
1-BROMOFLUOROBENZENE	96	%	1.0		

Report Notes:

0000009



CLIENT: PAUL CALLIGAN  
Tetra Tech NUS  
1401 Oven Park Dr., Suite 102  
Tallahassee, FL 32308

Lab Number : WP-3500-3  
Report Date: 09/14/99  
PO No. : N7912-P99264  
Project : CTO#68

WIC#: ONC CHARLESTON

REPORT OF ANALYTICAL RESULTS

Page 3 of 3

SAMPLE DESCRIPTION	MATRIX		SAMPLED BY		SAMPLED DATE RECEIVED			
13GLM0501	Aqueous		J.ALEXANDER		08/03/99	08/04/99		
PARAMETER	RESULT	UNITS	DF	*PQL	METHOD	ANALYZED	BY	NOTES
Nitrogen, Nitrate (as N)	<0.050	mg/L	1.0	0.050	E300	08/04/99	CF	
Sulfate (as SO4)	64.	mg/L	4.0	1.0	E300	08/26/99	CF	

\* PQL (Practical Quantitation Level) represents laboratory reporting limits and may not reflect sample-specific reporting limits. Sample-specific limits are indicated by results annotated with '<' val

09/14/99

LJO/baeajc(dw)/msm  
PH04N3W1

CC: MS. LEE LECK  
TETRATECH NUS  
FOSTER PLAZA 7  
661 ANDERSEN DR.





# KATAHDIN ANALYTICAL SERVICES

## REPORT OF ANALYTICAL RESULTS

Client: PAUL CALLIGAN  
Tetra Tech NUS  
1401 Capital Park Dr.  
Suite 102  
Tallahassee, FL 32308  
Proj. ID: CNC CHARLESTON

Lab Number: WP3500-3  
SDG: WP3500  
Report Date: 9/13/99  
PO No.: N7912-P99264  
Project: CTO#68  
% Solids: N/A  
Method: EPA 8270  
Date Analyzed: 8/13/99

Sample Description	Matrix	Sampled Date	Rec'd Date	Ext. Date	Ext'd By	Ext. Method	Analyst
13GLM0501	AQ	8/3/99	8/4/99	8/9/99	DS	EPA 3510	KRT

Compound	Result	Units	DF	Sample PQL	Method PQL
NAPHTHALENE	<10	ug/L	1.0	10	10
2-METHYLNAPHTHALENE	<10	ug/L	1.0	10	10
ACENAPHTHYLENE	<10	ug/L	1.0	10	10
ACENAPHTHENE	<10	ug/L	1.0	10	10
FLUORENE	<10	ug/L	1.0	10	10
PHENANTHRENE	<10	ug/L	1.0	10	10
ANTHRACENE	<10	ug/L	1.0	10	10
FLUORANTHENE	<10	ug/L	1.0	10	10
PYRENE	<10	ug/L	1.0	10	10
BENZO[A]ANTHRACENE	<10	ug/L	1.0	10	10
CHRYSENE	<10	ug/L	1.0	10	10
BENZO[B]FLUORANTHENE	<10	ug/L	1.0	10	10
BENZO[K]FLUORANTHENE	<10	ug/L	1.0	10	10
BENZO[A]PYRENE	<10	ug/L	1.0	10	10
INDENO[1,2,3-CD]PYRENE	<10	ug/L	1.0	10	10
DIBENZO[A,H]ANTHRACENE	<10	ug/L	1.0	10	10
BENZO[G,H,I]PERYLENE	<10	ug/L	1.0	10	10
NITROBENZENE-D5	61	%	1.0		
2-FLUOROBIPHENYL	60	%	1.0		
TERPHENYL-D14	74	%	1.0		

Port Notes:

0000011



# KATAHDIN ANALYTICAL SERVICES

## REPORT OF ANALYTICAL RESULTS

Client: PAUL CALLIGAN  
Tetra Tech NUS  
1401 Owen Park Dr.  
Suite 102  
Tallahassee, FL 32308  
Proj. ID: CNC CHARLESTON

Lab Number: WP3500-3  
SDG: WP3500  
Report Date: 9/13/99  
PO No. : N7912-P99264  
Project: CTO#68  
% Solids: N/A  
Method: SW6260  
Date Analyzed: 8/10/99

Sample Description	Matrix	Sampled Date	Rec'd Date	Ext. Date	Ext'd By	Ext. Method	Analyst
13GLM0501	AQ	8/3/99	8/4/99	8/10/99	KMC	5030	KMC

Compound	Result	Units	DF	Sample PQL	Method PQL
BENZENE	<5	ug/L	1.0	5	5
TOLUENE	<5	ug/L	1.0	5	5
1,2-DIBROMOETHANE	<5	ug/L	1.0	5	5
ETHYLBENZENE	<5	ug/L	1.0	5	5
NAPHTHALENE	<5	ug/L	1.0	5	5
MTBE	<5	ug/L	1.0	5	5
TOTAL XYLENES	<5	ug/L	1.0	5	5
DIBROMOFLUOROMETHANE	108	%	1.0		
1,2-DICHLOROETHANE-D4	110	%	1.0		
TOLUENE-D8	109	%	1.0		
2-BROMOFLUOROBENZENE	96	%	1.0		

Report Notes:

0000012



# KATAHDIN ANALYTICAL SERVICES

## REPORT OF ANALYTICAL RESULTS

Client: PAUL CALLIGAN  
Tetra Tech NUS  
1401 Owen Park Dr.  
Suite 102  
Tallahassee, FL 32308  
Proj. ID: CNC CHARLESTON

Lab Number: WP3500-4  
SDG: WP3500  
Report Date: 9/13/99  
PO No.: N7912-P99264  
Project: CTO#68  
% Solids: N/A  
Method: SW8260  
Date Analyzed: 8/10/99

Sample Description	Matrix	Sampled Date	Rec'd Date	Ext. Date	Ext'd By	Ext. Method	Analyst
137L01001	AQ	8/3/99	8/4/99	8/10/99	KMC	5030	KMC

Compound	Result	Units	DF	Sample PQL	Method PQL
BENZENE	<5	ug/L	1.0	5	5
TOLUENE	<5	ug/L	1.0	5	5
1,2-DIBROMOETHANE	<5	ug/L	1.0	5	5
ETHYLBENZENE	<5	ug/L	1.0	5	5
NAPHTHALENE	<5	ug/L	1.0	5	5
MTBE	<5	ug/L	1.0	5	5
TOTAL XYLENES	<5	ug/L	1.0	5	5
DIBROMOFLUOROMETHANE	106	%	1.0		
1,2-DICHLOROETHANE-D4	110	%	1.0		
TOLUENE-D8	110	%	1.0		
BROMOFLUOROBENZENE	96	%	1.0		

Port Notes:

0000013

# Karatdin Analytical Services, Inc. Quality Control Report

## Method Blank and Laboratory Control Sample Results

Client: Tetra Tech NUS

Work Order: WP3500

METHOD BLANK RESULTS								LABORATORY CONTROL SAMPLE RESULTS				
Parameter	Date of Prep	Date of Analysis	Units	Concentration Measured in Blank	Acceptance Range	Practical Quantitation Level**	Units	True Value	Measured Value	Percent Recovered	Acceptance Range (%)	Acceptance Range (mg/kg)
Nitrate-Nitrogen	04-Aug-99	04-Aug-99	mg/L	< 0.050	< 0.050	0.050	mg/L	2.5	2.34	93.6	80-120	
Sulfate	14-Aug-99	14-Aug-99	mg/L	< 1.0	< 1.0	1.0	mg/L	10	10.2	102.0	80-120	
	26-Aug-99	26-Aug-99	mg/L	< 1.0	< 1.0	1.0	mg/L	10	10.8	108.0	80-120	

\*\* Practical quantitation level is the lowest concentration measurable for samples with normal chemical and physical composition during routine laboratory operations.

### DATA QUALITY COMMENTS:

Results of all quality control measurements are within the laboratory and method specified acceptance range except as noted.

11000014



## Duplicate and Matrix Spike/Matrix Spike Duplicate Results

Client: Tetra Tech NUS

Work Order: WP3500

## DUPLICATE RESULTS

## MATRIX SPIKE/MATRIX SPIKE DUPLICATE RESULTS

Parameter	Katahdin Sample No	Sample Measurements		Mean		Acceptance		Concentration or Quantity				Matrix Spike Recovery (%)				RPD (%)	Acceptance Range (%)
		Units	Rep 1	Rep 2	Conc	RPD	for RPD	Units	Sampl	Spike	Sample	Sample	Sample	Sample	Acceptance		
						(%)	(%)		Only	Added	+Spike	+Spike	+Spike	+Spike	Range		
											Dup 1	Dup 2	Dup 1	Dup 2	(%)		(%)
Nitrate - N	WP3500-2	mg/L	<0.050	<0.050	<0.050	0.0	0-20	mg/L	<0.050	2.0	1.77		88.5		75-125		0-20
Sulfate	WP3500-2	mg/L	19.704	19.558	19.631	0.7	0-20	mg/L	19.7	10	35.2		155.0 *		75-125		0-20

RPD = Relative percent difference, which is the absolute value of the difference between two replicate results divided by the mean concentration then multiplied by 100%.

## DATA QUALITY COMMENTS:

Results of all quality control measurements are within the laboratory or contract specified acceptance range except as noted. The laboratory does not use the sample duplicate and matrix spike acceptance ranges as acceptance criteria for a specific analysis. Sample duplicate and matrix spike data are used to evaluate method performance in the environmental sample matrix only. Please refer to LCS data for assessment of quality control for each parameter.

- \* Matrix spike recovery is outside the laboratory's specified acceptance range indicating potential sample matrix interference and potential bias of reported value for this parameter.

0000015

4B  
SEMIVOLATILE ORGANICS METHOD BLANK SUMMARY

EPA SAMPLE NO.

**SBLK;080999**

Lab Name: Katahdin Analytical Services

SDG No.: WP3500

Lab File ID: Z1717

Lab Sample ID: SBLK;080999

Instrument ID: 5972-Z

Date Extracted: 8/9/99

GC Column: RTX-624 ID: 0.18 (mm)

Date Analyzed: 08/11/99

Matrix: (soil/water) WATER

Time Analyzed: 21:04

Level: (low/med) LOW

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES, LCS'S, MS AND MSD'S

Client Sample ID	Lab Sample ID	Lab Data File	Date Injected	Time Injected
LCS;080999	LCS;080999	Z1718	8/11/99	9:51:00 PM
13GLM0301	WP3500-2	Z1720	8/11/99	11:25:00 PM
13GLM0101	WP3500-1	Z1727	8/13/99	8:33:00 AM
13GLM0501	WP3500-3	Z1728	8/13/99	9:20:00 AM



# KATAHDIN ANALYTICAL SERVICES

## REPORT OF ANALYTICAL RESULTS

Client: PAUL CALLIGAN  
Tetra Tech NUS  
1401 Oven Park Dr.  
Suite 102  
Tallahassee, FL 32308  
Proj. ID: CNC CHARLESTON

Lab Number: SBLK080999  
SDG: WP3500  
Report Date: 9/13/99  
PO No.: N7912-P99264  
Project: CTO#68  
% Solids: N/A  
Method: EPA 8270  
Date Analyzed: 8/11/99

Sample Description	Matrix	Sampled Date	Rec'd Date	Ext. Date	Ext'd By	Ext. Method	Analyst
SBLK080999	AQ	-	-	8/9/99	DS	EPA 3510	KRT

Compound	Result	Units	DF	Sample PQL	Method PQL
NAPHTHALENE	<10	ug/L	1.0	10	10
2-METHYLNAPHTHALENE	<10	ug/L	1.0	10	10
ACENAPHTHYLENE	<10	ug/L	1.0	10	10
ACENAPHTHENE	<10	ug/L	1.0	10	10
FLUORENE	<10	ug/L	1.0	10	10
PHENANTHRENE	<10	ug/L	1.0	10	10
ANTHRACENE	<10	ug/L	1.0	10	10
FLUORANTHENE	<10	ug/L	1.0	10	10
PYRENE	<10	ug/L	1.0	10	10
1,2,3,4-TETRAHYDROANTHRACENE	<10	ug/L	1.0	10	10
1,2,3,4-TETRAHYDROANTHRACENE	<10	ug/L	1.0	10	10
BENZO[B]FLUORANTHENE	<10	ug/L	1.0	10	10
BENZO[K]FLUORANTHENE	<10	ug/L	1.0	10	10
BENZO[A]PYRENE	<10	ug/L	1.0	10	10
INDENO[1,2,3-CD]PYRENE	<10	ug/L	1.0	10	10
DIBENZ[A,H]ANTHRACENE	<10	ug/L	1.0	10	10
BENZO[G,H,I]PERYLENE	<10	ug/L	1.0	10	10
NITROBENZENE-D5	68	%	1.0		
2-FLUOROBIPHENYL	70	%	1.0		
TERPHENYL-D14	102	%	1.0		

Notes:

0000017

**Katahdin Analytical Services**  
**8270 LCS Recovery Sheet**

Lab File: Z1718

Sample ID: LCS;080999

Date Run: 8/11/99

Analyst: KRT

Time Injected 9:51:00 PM

Matrix: AQ

Compound Name	Spike Amt (ug/L)	Result (ug/L)	Rec (%)	Limits (%)
2-METHYLNAPHTHALENE	50	37.0	74	70-130
ACENAPHTHENE	50	39.8	80	70-130
ACENAPHTHYLENE	50	40.3	80	70-130
ANTHRACENE	50	48.8	98	70-130
BENZO[A]ANTHRACENE	50	45.0	90	70-130
BENZO[A]PYRENE	50	37.8	76	70-130
BENZO[B]FLUORANTHENE	50	34.4	*69	70-130
BENZO[G,H,I]PERYLENE	50	38.9	78	70-130
BENZO[K]FLUORANTHENE	50	43.0	86	70-130
CHRYSENE	50	47.3	95	70-130
DIBENZ[A,H]ANTHRACENE	50	37.5	75	70-130
FLUORANTHENE	50	48.6	97	70-130
FLUORENE	50	39.5	79	70-130
INDENO[1,2,3-CD]PYRENE	50	45.6	91	70-130
NAPHTHALENE	50	38.2	76	70-130
PHENANTHRENE	50	46.3	92	70-130
PYRENE	50	45.5	91	70-130

\* Out of Limits

1

0000018



4A  
VOLATILE ORGANICS METHOD BLANK SUMMARY

EPA SAMPLE NO.

**VBLS10A**

Lab Name: Katahdin Analytical Services

SDG No.: WP3500

Lab File ID: S5961

Lab Sample ID: VBLKS10A

Date Analyzed: 08/10/99

Time Analyzed: 16:54

GC Column: RTX-624 ID: 0.18 (mm)

Heated Purge: (Y/N) N

Instrument ID: 5972-S

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES, LCS'S, MS AND MSD'S

Client Sample ID	Lab Sample ID	Lab Data File	Date Injected	Time Injected
LCSS10B	LCSS10B	S5960	8/10/99	3:58:00 PM
13GLM0101	WP3500-1	S5965	8/10/99	7:49:00 PM
13GLM0301	WP3500-2	S5966	8/10/99	8:28:00 PM
13GLM0501	WP3500-3	S5967	8/10/99	9:07:00 PM
13TL01001	WP3500-4	S5968	8/10/99	9:46:00 PM



# KATAHDIN ANALYTICAL SERVICES

## REPORT OF ANALYTICAL RESULTS

Client: PAUL CALLIGAN  
Tetra Tech NUS  
1401 Oven Park Dr.  
Suite 102  
Tallahassee, FL 32308  
Proj. ID: CNC CHARLESTON

Lab Number: VBLKS10A  
SDG: WP3500  
Report Date: 9/13/99  
PO No.: N7912-P99264  
Project: CTO#68  
% Solids: N/A  
Method: SW8260  
Date Analyzed: 8/10/99

Sample Description	Matrix	Sampled Date	Rec'd Date	Ext. Date	Ext'd By	Ext. Method	Analyst
VBLKS10A	AQ	-	-	8/10/99	KMC	5030	KMC

Compound	Result	Units	DF	Sample PQL	Method PQL
BENZENE	<5	ug/L	1.0	5	5
TOLUENE	<5	ug/L	1.0	5	5
1,2-DIBROMOETHANE	<5	ug/L	1.0	5	5
ETHYLBENZENE	<5	ug/L	1.0	5	5
NAPHTHALENE	<5	ug/L	1.0	5	5
MTBE	<5	ug/L	1.0	5	5
TOTAL XYLENES	<5	ug/L	1.0	5	5
DIBROMOFLUOROMETHANE	95	%	1.0		
1,2-DICHLOROETHANE-D4	95	%	1.0		
TOLUENE-D8	102	%	1.0		
p-BROMOFLUOROBENZENE	102	%	1.0		

Report Notes:

0000020

**Katahdin Analytical Services**  
**8260 LCS Recovery Sheet**

Lab File: S5960

Sample ID: LCSS10B

Date Run: 8/10/99

Analyst: KMC

Time Injected 3:58:00 PM

Matrix: AQ

Compound Name	Spike Amt (ug/L)	Result (ug/L)	Rec (%)	Limits (%)
1,2-DIBROMOETHANE	50	48.1	96	60-140
BENZENE	50	46.4	93	60-140
ETHYLBENZENE	50	57.2	114	60-140
MTBE	50	52.5	105	60-140
NAPHTHALENE	50	65.9	132	60-140
TOLUENE	50	49.4	99	60-140
TOTAL XYLENES	150	178	119	60-140

\* Out of Limits

1

0000021



ENSR  
Air Toxics Specialty Laboratory  
42 Nagog Park  
Acton, MA 01720

DATE: August 31, 1999

TO: Andrea Colby  
Katahdin Analytical  
340 County Road No. 5  
P.O. Box 720  
Westbrook, ME 04098

Re: Organic Analyses of Aqueous Samples by Gas Chromatography Flame  
Ionization Detection (GC/FID)

PROJECT #: **8601-008-200**

LAB ID #: **990138**

**ANALYTICAL PROCEDURE:**

Three (3) aqueous samples were analyzed under the guidelines of EPA SW846 Method 3810.

A Hewlett Packard 5890 series II gas chromatograph (GC) equipped with a Hewlett Packard flame ionization detector (FID) was used for the analysis. A 1.0 mL headspace aliquot of each sample was injected into the column for analysis. The operating conditions of the GC/FID are listed in Table 1. A five point calibration was performed for the target analyte (methane).

No problems occurred during sample receipt or log-in.

A laboratory blank was analyzed daily in the same manner as the samples. Target compounds were not present in the laboratory blank.

MS/MSD was performed on sample WP3492-5(08) / WP3492-5(05)

Date Samples Received by the Laboratory: 08/10/99

Date Analysis Started: 08/13/99

A:\990131\katrpt2.doc



**TABLE 1**  
**GC/FID OPERATING CONDITIONS**

Instrument	Hewlett Packard 5890 Series II GC
Injector Temperature	195°C
Column	80/100 Carboxen 1004
Parameters	1/16" OD; stainless steel
Carrier Gas	UHP Helium
Flow Rate	16 ml/min
Detector	Flame Ionization Detector
Temperature	210°C
Temperature Program	Initial Temp: 135°C
	Hold: 0.0 min
	Ramping Rate: 20°C/min
	Final Temperature: 150°C
	Final Hold: 6.25 min
Data System	Turbochrom 4.1 software



# SAMPLE LOG-IN & RECEIPT CHECKLIST

Client/Proj #: Katahdin WP 3500

Proj Mgr: M. Hout

Lab Pool #: 99038

Inspected & Logged in by: A. REE

Date Time: 8/10/99 1040

Sample Matrix	Number of Samples	Analysis Requested	Analyze by (date)	Storage Location
AQUEOUS 40ml Vials	3	ME	8/17/99	R1
			RESULTS	
			DUI 9/2	

Circle the appropriate response:

- 1) Shipped / Hand delivered
- 2) COC present / not present on receipt
- 3) COC Tape present / not present on shipping container
- 4) Samples broken / intact on receipt
- 5) Samples ambient / chilled on receipt 6°C
- 6) Samples preserved correctly / incorrectly / none recommended
- 7) Received within / outside holding time
- 8) COC tapes present / not present on samples
- 9) Discrepancies NO discrepancies noted between COCs and samples

Additional Comments: \_\_\_\_\_

1  
ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

Lab Name: \_\_\_\_\_ ENSR \_\_\_\_\_ Contract: \_\_\_\_\_

WP3500-1 (A)

Lab Code: \_\_\_\_\_ Case No.: \_\_\_\_\_ SAS \_\_\_\_\_ SDG NO.: \_\_\_\_\_

Matrix: (soil/water) \_\_\_\_\_ water \_\_\_\_\_ Lab Sample ID: \_\_\_\_\_ 990138-1 \_\_\_\_\_

Sample wt / vol: \_\_\_\_\_ 32.5 ml \_\_\_\_\_ (g/ml) Lab File ID: \_\_\_\_\_ MEE\_019 \_\_\_\_\_

Level: (low/med) \_\_\_\_\_ low \_\_\_\_\_ Date Received: \_\_\_\_\_ 08/10/99 \_\_\_\_\_

% Moisture: \_\_\_\_\_ NA \_\_\_\_\_ Date Analyzed: \_\_\_\_\_ 08/13/99 \_\_\_\_\_

GC Column: \_\_\_\_\_ Carboxen 1004 \_\_\_\_\_ OD: \_\_\_\_\_ 1/16" \_\_\_\_\_ Dilution Factor: \_\_\_\_\_ 1 \_\_\_\_\_

Soil Extract Volume: \_\_\_\_\_ NA \_\_\_\_\_ (µl) Soil Aliquot Volume: \_\_\_\_\_ NA \_\_\_\_\_ (µl)

CAS NO.	COMPOUND	CONCENTRATION UNITS:	
		(µg/L or PPMv) _____ µg/L _____	Q
74-82-8	Methane	20	



1  
ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO. \_\_\_\_\_

Lab Name: \_\_\_\_\_ ENSR \_\_\_\_\_ Contract: \_\_\_\_\_

WP3500-2 (A)

Lab Code: \_\_\_\_\_ Case No.: \_\_\_\_\_ SAS NO.: \_\_\_\_\_ SDG NO.: \_\_\_\_\_

Matrix: (soil/water) \_\_\_\_\_ water \_\_\_\_\_

Lab Sample ID: \_\_\_\_\_ 990138-2 \_\_\_\_\_

Sample wt / vol: \_\_\_\_\_ 32.5 ml \_\_\_\_\_ (g/ml)

Lab File ID: \_\_\_\_\_ MEE\_020 \_\_\_\_\_

Level: (low/med) \_\_\_\_\_ low \_\_\_\_\_

Date Received: \_\_\_\_\_ 08/10/99 \_\_\_\_\_

% Moisture: \_\_\_\_\_ NA \_\_\_\_\_

Date Analyzed: \_\_\_\_\_ 08/13/99 \_\_\_\_\_

GC Column: \_\_\_\_\_ Carboxen 1004 \_\_\_\_\_ OD: \_\_\_\_\_ 1/16" \_\_\_\_\_

Dilution Factor: \_\_\_\_\_ 1 \_\_\_\_\_

Soil Extract Volume: \_\_\_\_\_ NA \_\_\_\_\_ (µl)

Soil Aliquot Volume: \_\_\_\_\_ NA \_\_\_\_\_ (µl)

CAS NO.

COMPOUND

CONCENTRATION UNITS:  
(µg/L or PPMv) \_\_\_\_\_ µg/L \_\_\_\_\_

Q

74-82-8

Methane

9.4

1  
ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

Lab Name: \_\_\_\_\_ ENSR \_\_\_\_\_ Contract: \_\_\_\_\_

WP3500-3 (B)

Lab Code: \_\_\_\_\_ Case No.: \_\_\_\_\_ SAS NO.: \_\_\_\_\_ SDG NO.: \_\_\_\_\_

Matrix: (soil/water) \_\_\_\_\_ water \_\_\_\_\_

Lab Sample ID: \_\_\_\_\_ 990138-3 \_\_\_\_\_

Sample wt / vol: \_\_\_\_\_ 32.5 ml \_\_\_\_\_ (g/ml)

Lab File ID: \_\_\_\_\_ MEE\_022 \_\_\_\_\_

Level: (low/med) \_\_\_\_\_ low \_\_\_\_\_

Date Received: \_\_\_\_\_ 08/10/99 \_\_\_\_\_

% Moisture: \_\_\_\_\_ NA \_\_\_\_\_

Date Analyzed: \_\_\_\_\_ 08/13/99 \_\_\_\_\_

GC Column: \_\_\_\_\_ Carboxen 1004 \_\_\_\_\_ OD: \_\_\_\_\_ 1/16" \_\_\_\_\_

Dilution Factor: \_\_\_\_\_ 1 \_\_\_\_\_

Soil Extract Volume: \_\_\_\_\_ NA \_\_\_\_\_ (μl)

Soil Aliquot Volume: \_\_\_\_\_ NA \_\_\_\_\_ (μl)

CAS NO.	COMPOUND	CONCENTRATION UNITS:	
		(μg/L or PPMv) _____ μg/L _____	Q
74-82-8	Methane	3.7	J

1  
ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

Lab Name: \_\_\_\_\_ ENSR \_\_\_\_\_ Contract: \_\_\_\_\_

VBLK01

Lab Code: \_\_\_\_\_ Case No.: \_\_\_\_\_ SAS NO.: \_\_\_\_\_ SDG NO.: \_\_\_\_\_

Matrix: (soil/water) \_\_\_\_\_ water \_\_\_\_\_

Lab Sample ID: \_\_\_\_\_ Method Blank \_\_\_\_\_

Sample wt / vol: \_\_\_\_\_ 32.5 ml \_\_\_\_\_ (g/ml)

Lab File ID: \_\_\_\_\_ MEE\_013 \_\_\_\_\_

Level: (low/med) \_\_\_\_\_ low \_\_\_\_\_

Date Received: \_\_\_\_\_ NA \_\_\_\_\_

% Moisture: \_\_\_\_\_ NA \_\_\_\_\_

Date Analyzed: \_\_\_\_\_ 08/13/99 \_\_\_\_\_

GC Column: \_\_\_\_\_ Carboxen 1004 \_\_\_\_\_ OD: \_\_\_\_\_ 1/16" \_\_\_\_\_

Dilution Factor: \_\_\_\_\_ 1 \_\_\_\_\_

Soil Extract Volume: \_\_\_\_\_ NA \_\_\_\_\_ (µl)

Soil Aliquot Volume: \_\_\_\_\_ NA \_\_\_\_\_ (µl)

CAS NO.	COMPOUND	CONCENTRATION UNITS:	
		(µg/L or PPMv) _____ µg/L _____	Q
74-82-8	Methane	5.2	U

## MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY

Lab Name: ENSUR

Contract: \_\_\_\_\_

Lab Code: \_\_\_\_\_ Case NO.: \_\_\_\_\_ SAS NO.: \_\_\_\_\_ SDG NO.: \_\_\_\_\_

Matrix Spike - EPA Sample NO.: WP3492-5

COMPOUND	SPIKE ADDED (µg/L)	SAMPLE CONCENTRATION (µg/L)	MS CONCENTRATION (µg/L)	MS % REC	QC LIMITS REC.
Methane	205.0	22	178.9	76%	50-150

COMPOUND	SPIKE ADDED (µg/L)	MSD CONCENTRATION (µg/L)	MSD % REC	% RPD	QC LIMITS REC.
Methane	205.0	196.5	85%	12%	50-150

Spike recovery: 0 out of 2 outside limits.RPD: 0 out of 1 outside limits.

Comments:

4  
METHOD BLANK SUMMARY

EPA SAMPLE NO. \_\_\_\_\_

Lab Name: \_\_\_\_\_ ENSR \_\_\_\_\_ Contract: \_\_\_\_\_ VBLK01 \_\_\_\_\_

Lab Code: \_\_\_\_\_ Case No.: \_\_\_\_\_ SAS NO.: \_\_\_\_\_ SDG NO.: \_\_\_\_\_

Lab File ID: \_\_\_\_\_ MEE\_013 \_\_\_\_\_ Lab Sample ID: \_\_\_\_\_ Method blank \_\_\_\_\_

Instrument ID: \_\_\_\_\_ HPGC#3 \_\_\_\_\_ Date Analyzed: \_\_\_\_\_ 08/13/99 \_\_\_\_\_

Matrix: (soil/water) \_\_\_\_\_ water \_\_\_\_\_ Level: (low/med) \_\_\_\_\_ low \_\_\_\_\_

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES; MS AND MSD

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED
01	LCS01	LCS	MEE 014	08/13/99
02	WP3492-5 (08)MS	990131-1 MS	MEE 016	08/13/99
03	WP3492-5 (05)MSD	990131-1 MSD	MEE 017	08/13/99
04	WP3500-1 (A)	990138-1	MEE 019	08/13/99
05	WP3500-2 (A)	990138-2	MEE 020	08/13/99
06	WP3500-3 (B)	990138-3	MEE 022	08/13/99
07				
08				
09				
10				
11				
12				
13				
14				
15				
16				
17				
18				
19				
20				
21				
22				
23				
24				
25				
26				

COMMENTS:



August 27, 1999

Mr. Paul Calligan  
Tetra Tech Nus  
1401 Oven Park Dr.  
Suite 102  
Tallahassee, FL 32308

RE: Katahdin Lab Number: WP3395  
Project ID: CNC Charleston  
Project Manager: Ms. Andrea J. Colby  
Sample Receipt Date(s): 7/27/99

Dear Mr. Calligan:

Please find enclosed the following information:

- \* Report of Analysis
- \* Quality Control Data Summary
- \* Chain of Custody
- \* Confirmation

Should you have any questions or comments concerning this Report of Analysis, please do not hesitate to contact the project manager listed above. This cover letter is an integral part of the ROA.

We appreciate your continued use of our laboratory and look forward to working with you in the future. The following signature indicates technical review and acceptance of the data.

Sincerely,

KATAHDIN ANALYTICAL SERVICES

Maria Crouch  
Authorized Signature

08/27/99  
Date

**SDG NARRATIVE  
KATAHDIN ANALYTICAL SERVICES  
TETRA TECH NUS  
CASE CNC CHARLESTON**

**Sample Receipt**

The following samples were received on July 27, 1999 and were logged in under Katahdin Analytical Services work order number WP3395 for a hardcopy due date of August 26, 1999.

<u>KATAHDIN</u> <u>Sample No.</u>	<u>TTNUS</u> <u>Sample Identification</u>
WP3395-1	12TL00801
WP3395-2	12GLM0401
WP3395-3	12GLM0401D
WP3395-4	12GLM0501
WP3395-5	12GLM0301
WP3395-6	12GLM0701
WP3395-7	13GLM0201
WP3395-8	13GLM0201D
WP3395-9	13GLM0401
WP3395-10	29GLM0201
WP3395-11	29GLM0401
WP3395-12	29GLM0401D
WP3395-13	29GLM0501
WP3395-14	ZBR00101
WP3395-15	12GLM0101
WP3395-16	12GLM0201
WP3395-17	12GLM0601

The samples were logged in for the analyses specified on the chain of custody form. All problems encountered and resolved during sample receipt have been documented on the applicable chain of custody forms.

Sample analyses have been performed by the methods as noted herein.

**Volatile Organics Analysis**

Seventeen aqueous samples were received by the Katahdin Analytical Services, Inc. GC/MS laboratory on July 27, 1999 and were specified to be analyzed by USEPA method 8260B for the analytes benzene, toluene, ethylbenzene, xylenes, MTBE, naphthalene, and EDB.

Analyses for this workorder were performed on the 5972-M and 5973-U instruments. A VSTD050 (50 ppb standard) was used for the continuing calibration standard. Internal standard and surrogate compounds were also spiked at 50 ug/l.

Batch QC (VBLK, and LCS) was performed in each twelve-hour window. Results are included in this data package. The LCS QC samples were spiked with the entire list of compounds quantitated for at 50 ppb. No matrix spike/matrix spike duplicate was performed on any of the samples in this workorder.

Method 8000B, section 7.5.1.2.1 (Revision 2, 12/96) states, "in those instances where the RSD for one or more analytes exceeds 20%, the initial calibration curve may still be acceptable if the mean of the RSD values for all analytes in the calibration is less than or equal to 20%." Method 8260B narrows this 20% maximum to 15%.

In the calibration curves analyzed in this SDG, the average %RSD for all analytes was 10.4% and 15.0%, making the curves acceptable.

Several manual integrations were performed due to split peaks; all have been flagged with a "M" (software-generated) on the pertinent quantitation reports. All "M" flags have been dated and initialed by the analyst performing the integration. In addition, all "M" flags have been reviewed and approved by the GC/MS supervisor. Copies of each manual integration are included in the pertinent quantitation reports.

No other protocol deviations were noted by the volatile organics staff.

#### **Semivolatile Organics Extraction and Analysis**

Sixteen aqueous samples were received by Katahdin Analytical Services laboratory on July 27, 1999 for analysis in accordance with 8270C for a client specified PAH list of analytes.

Extraction of the samples occurred following USEPA method 3510 on July 28, 1999. A laboratory control spike/laboratory control spike duplicate pair, consisting of all PAH analytes spiked into organic free water, was extracted in the batch.

The initial calibration curve analyzed in this SDG had some of the target analyte %RSD values exceeding 15 %.

Method 8000B, section 7.5.1.2.1 (Revision 2, 12/96) states, "in those instances where the RSD for one or more analytes exceeds 20%, the initial calibration curve may still be acceptable if the mean of the RSD values for all analytes in the calibration is less than or equal to 20%." Section 7.3.7.1 of method 8270C (revision 3, 12/96) narrows this 20% maximum to 15%.

In the calibration curve analyzed in this SDG, the average %RSD for all analytes was 10.1%, making the curve acceptable.



Several manual integrations were performed due to split peaks; all have been flagged with a "M" by the data system. All manual integrations have been dated and initialed by the responsible analyst. Copies of each manual integration are included in the data package. All manual integrations have been reviewed and approved by the GC/MS supervisor.

**Wet Chemistry Analysis**

Samples for work order WP3395 were analyzed for nitrate and sulfate in accordance with "Methods for Chemical Analysis of Water and Wastes", EPA 600/4-79-020, 1979, Revised 1983. No deviations were noted by the Wet Chemistry group.

KATAHDIN ANALYTICAL SERVICES, INC.  
SAMPLE RECEIPT CONDITION REPORT  
Tel. (207) 874-2400  
Fax (207) 775-4029

LAB (WORK ORDER) # WP 3395

PAGE: 1 OF 4

COOLER: 1 OF 4

COC# ---

SDG# ---

DATE / TIME RECEIVED: 7-27-99 0850

DELIVERED BY: FedEx

RECEIVED BY: Sa

LIMS ENTRY BY: Sa

LIMS REVIEW BY / PM: ACL

CLIENT: Tetra Tech

PROJECT: CNC

	YES	NO	EXCEPTIONS	COMMENTS	RESOLUTION
1. CUSTODY SEALS PRESENT / INTACT?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
2. CHAIN OF CUSTODY PRESENT IN THIS COOLER?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>		
3. CHAIN OF CUSTODY SIGNED BY CLIENT?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
4. CHAIN OF CUSTODY MATCHES SAMPLES?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<u>NO VOAs for 12GLM0401</u>	<u>ACL contacted Paul Calligan was decided first since we had a filled up - vials can be shared between 2 samples</u>
5. TEMPERATURE BLANKS PRESENT?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	TEMP BLANK TEMP (°C) = <u>1.9</u>	
6. SAMPLES RECEIVED AT 4°C +/- 2?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	COOLER TEMP (°C) = <u>NA</u>	
(ICE) ICE PACKS PRESENT (Y) or N?				(RECORD COOLER TEMP ONLY IF TEMP BLANK IS NOT PRESENT)	
7. VOLATILES FREE OF HEADSPACE?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
8. TRIP BLANK PRESENT IN THIS COOLER	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
9. PROPER SAMPLE CONTAINERS AND VOLUME?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
10. SAMPLES WITHIN HOLD TIME UPON RECEIPT?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
11. SAMPLES PROPERLY PRESERVED <sup>(1)</sup> ?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
12. CORRECTIVE ACTION REPORT FILED?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<u>N/A</u>		
13. ANALYTICAL PROGRAMS (CIRCLE ONE) COMMERCIAL CLP HAZWRAP <u>NFESC</u> ACOE AFCEE OTHER (STATE OF ORIGIN):					

LOG - IN NOTES<sup>(1)</sup>: no VOAs for 12GLM0401  
1 PAH bottle for each 13GLM0301, 13GLM0401, 29GLM0501 arrived broken (extra volume avail.)

<sup>(1)</sup> Use this s. (and additional sheets if necessary) to document samples that are received broken, compromised, C-O-C discrepancies, radiation checks, residual chlorine check, results of pH check if required. If samples required pH adjustment, record volume and type of preservative added.

KATAHDIN ANALYTICAL SERVICES, INC.  
SAMPLE RECEIPT CONDITION REPORT  
Tel. (207) 874-2400  
Fax (207) 775-4029

LAB (WORK ORDER) # WP 3395

PAGE: 2 OF 4

COOLER: 2 OF 4

COC# —

SDG# —

DATE / TIME RECEIVED: 7-27-99 0850

DELIVERED BY: FedEx

RECEIVED BY: San

LIMS ENTRY BY: San

LIMS REVIEW BY / PM: ATC

CLIENT: Tetra Tech

PROJECT: CNC

	YES	NO	EXCEPTIONS	COMMENTS	RESOLUTION
1. CUSTODY SEALS PRESENT / INTACT?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
2. CHAIN OF CUSTODY PRESENT IN THIS COOLER?	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>		
3. CHAIN OF CUSTODY SIGNED BY CLIENT?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
4. CHAIN OF CUSTODY MATCHES SAMPLES?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
5. TEMPERATURE BLANKS PRESENT?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	TEMP BLANK TEMP (°C)=	
6. SAMPLES RECEIVED AT 4°C +/- 2?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	COOLER TEMP (°C)= <u>5.5</u> NA	
ICE / ICE PACKS PRESENT (Y or N)?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	(RECORD COOLER TEMP ONLY IF TEMP BLANK IS NOT PRESENT)	
7. VOLATILES FREE OF HEADSPACE?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
8. TRIP BLANK PRESENT IN THIS COOLER	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>		
9. PROPER SAMPLE CONTAINERS AND VOLUME?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
10. SAMPLES WITHIN HOLD TIME UPON RECEIPT?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
11. SAMPLES PROPERLY PRESERVED <sup>(1)</sup> ?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
12. CORRECTIVE ACTION REPORT FILED?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	N/A		
13. ANALYTICAL PROGRAMS (CIRCLE ONE) COMMERCIAL CLP HAZWRAP <u>NFESC</u> ACOE AFCEE OTHER (STATE OF ORIGIN):					

LOG - IN NOTES<sup>(1)</sup>:

<sup>(1)</sup> Use this space (and additional sheets if necessary) to document samples that are received broken or compromised, C-O-C discrepancies, radiation checks, residual chlorine check, results of pH check if required. If samples required pH adjustment, record volume and type of preservative added.

0000056

**KATAHDIN ANALYTICAL SERVICES, INC.**  
**SAMPLE RECEIPT CONDITION REPORT**  
 Tel. (207) 874-2400  
 Fax (207) 775-4029

LAB (WORK ORDER) # WP3395

PAGE: 3 OF 4

COOLER: 3 OF 4

COC# —

SDG# —

DATE / TIME RECEIVED: 7-27-99 0850

DELIVERED BY: FedEx

RECEIVED BY: Sam

LIMS ENTRY BY: Sam

LIMS REVIEW BY / PM: APC

CLIENT: Tetra Tech

PROJECT: CNC

	YES	NO	EXCEPTIONS	COMMENTS	RESOLUTION
1. CUSTODY SEALS PRESENT / INTACT?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
2. CHAIN OF CUSTODY PRESENT IN THIS COOLER?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
3. CHAIN OF CUSTODY SIGNED BY CLIENT?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
4. CHAIN OF CUSTODY MATCHES SAMPLES?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
5. TEMPERATURE BLANKS PRESENT?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	TEMP BLANK TEMP (°C) = <u>3.0</u>	
6. SAMPLES RECEIVED AT 4°C +/- 2?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	COOLER TEMP (°C) = <u>NA</u>	
(ICE) ICE PACKS PRESENT (Y or N)?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	(RECORD COOLER TEMP ONLY IF TEMP BLANK IS NOT PRESENT)	
7. VOLATILES FREE OF HEADSPACE?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
8. TRIP BLANK PRESENT IN THIS COOLER	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>		
9. PROPER SAMPLE CONTAINERS AND VOLUME?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
10. SAMPLES WITHIN HOLD TIME UPON RECEIPT?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
11. SAMPLES PROPERLY PRESERVED <sup>(1)</sup> ?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
12. CORRECTIVE ACTION REPORT FILED?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	N/A		
13. ANALYTICAL PROGRAMS (CIRCLE ONE) COMMERCIAL CLP HAZWRAP <u>NFESC</u> ACOE AFCEE OTHER (STATE OF ORIGIN):					

LOG - IN NOTES<sup>(1)</sup>:

<sup>(1)</sup> Use this s (and additional sheets if necessary) to document samples that are received broke. check if required. If samples required pH adjustment, record volume and type of preservative added

compromised, C-O-C discrepancies, radiation checks, residual chlorine check, results of pH

0000057

**KATAHDIN ANALYTICAL SERVICES, INC.**  
**SAMPLE RECEIPT CONDITION REPORT**  
 Tel. (207) 874-2400  
 Fax (207) 775-4029

LAB (WORK ORDER) # WP3395

PAGE: 4 OF 4

COOLER: 4 OF 4

COC# —

SDG# —

DATE / TIME RECEIVED: 7-27-99 0850

DELIVERED BY: FedEx

RECEIVED BY: Sam

LIMS ENTRY BY: Sam

LIMS REVIEW BY / PM: ACL

CLIENT: Tetra Tech

PROJECT: CNC

	YES	NO	EXCEPTIONS	COMMENTS	RESOLUTION
1. CUSTODY SEALS PRESENT / INTACT?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
2. CHAIN OF CUSTODY PRESENT IN THIS COOLER?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>		
3. CHAIN OF CUSTODY SIGNED BY CLIENT?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
4. CHAIN OF CUSTODY MATCHES SAMPLES?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
5. TEMPERATURE BLANKS PRESENT?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	TEMP BLANK TEMP (°C) = <u>2.7</u>	
6. SAMPLES RECEIVED AT 4°C +/- 2?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	COOLER TEMP (°C) = <u>NA</u>	
ICE / ICE PACKS PRESENT (Y or N)?				(RECORD COOLER TEMP ONLY IF TEMP BLANK IS NOT PRESENT)	
7. VOLATILES FREE OF HEADSPACE?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
8. TRIP BLANK PRESENT IN THIS COOLER	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>		
9. PROPER SAMPLE CONTAINERS AND VOLUME?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
10. SAMPLES WITHIN HOLD TIME UPON RECEIPT?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
11. SAMPLES PROPERLY PRESERVED <sup>(1)</sup> ?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
12. CORRECTIVE ACTION REPORT FILED?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	N/A		

13. ANALYTICAL PROGRAMS (CIRCLE ONE) COMMERCIAL CLP HAZWRAP NFESC ACOE AFCEE OTHER (STATE OF ORIGIN):

LOG - IN NOTES<sup>(1)</sup>:

<sup>(1)</sup> Use this space (and additional sheets if necessary) to document samples that are received broken or compromised, C-O-C discrepancies, radiation checks, residual chlorine check, results of pH check if required. If samples required pH adjustment, record volume and type of preservative added.

0000058



P.O. Box 720  
Westbrook, ME 04098  
Tel: (207) 874-2400  
Fax: (207) 775-4029

# CHAIN OF CUSTODY

PLEASE PRINT IN PEN

Page \_\_\_\_ of \_\_\_\_

Client Tetra Tech NUS Inc. Contact \_\_\_\_\_ Phone # (843) 554-4925 Fax # \_\_\_\_\_

Address NH-21 Ave H City N. Charleston State S.C. Zip Code 29405

Purchase Order # \_\_\_\_\_ Proj. Name / No. \_\_\_\_\_ Katahdin Quote # \_\_\_\_\_

Bill (if different than above) \_\_\_\_\_ Address \_\_\_\_\_

Sampler (Print / Sign) James R. Hill Copies To: \_\_\_\_\_

LAB USE ONLY WORK ORDER # WP3395 KATAHDIN PROJECT MANAGER

REMARKS: \_\_\_\_\_

SHIPPING INFO: ☒ FED EX ☐ UPS ☐ CLIENT  
AIRBILL NO: 813402904554  
TEMP °C \_\_\_\_\_ ☐ TEMP BLANK ☐ INTACT ☐ NOT INTACT

* Sample Description	Date / Time coll'd	Matrix	No. of Cntrs.	Fit. OYON	Fit. OYON	Fit. OYON	Fit. OYON	Fit. OYON	Fit. OYON	Fit. OYON	Fit. OYON	Fit. OYON	Fit. OYON	Fit. OYON	Fit. OYON
12TL00801	2/24/99 0730	GW	2	2	2	2	2	2	2	2	2	2	2	2	2
12GLM0401	1/1005		5	3	2										
12GLM0401D	1/1005		5	3	2										
12GLM0501	1/1008		5	3	2										
12GLM0301	1/1014		5	3	2										
12GLM0701	1/1223		5	3	2										
13GLM0201	1/1521		5	3	2										
13GLM0201D	1/1521		5	3	2										
13GLM0401	1/1510		5	3	2										
12GLM0101	2/25/99 1205		9	3	2	3	1								
12GLM0201	1/1210		9	3	2	3	1								
12GLM0601	1/1215		9	3	2	3	1								
29GLM0201	2/25/99 1105		5	3	2										
29GLM0401	1/1125		5	3	2										
29GLM0401D	1/1125		5	3	2										
29GLM0501	1/1130		5	3	2										

COMMENTS EBRL00101 n 1450 5 3 2 RINSE

Relinquished By: (Signature) [Signature] Date / Time 2/26/99 1600 Received By: (Signature) [Signature] Date / Time 2/27/99 0850

Relinquished By: (Signature) \_\_\_\_\_ Date / Time \_\_\_\_\_ Received By: (Signature) \_\_\_\_\_ Date / Time \_\_\_\_\_

**New England-ME Laboratory (207) 874-2400**  
**CONFIRMATION**

Page 1

ORDER NO WP-3395

Project Manager: Andrea J. Colby

REPORT TO: Paul Calligan  
Tetra Tech NUS  
1401 Oven Park Dr., Suite 102  
Tallahassee, FL 32308

ORDER DATE: 07/27/99

PHONE: 850/385-9899

FAX: 850/385-9860

DUE: 26 AUG

FAC.ID: CNC CHARLESTON

INVOICE: ACCOUNTS PAYABLE  
TETRA TECH NUS, INC.  
FOSTER PLAZA 7, 661 ANDERSEN DR.  
PITTSBURGH, PA 15220

PHONE: 412/921-7090

PO: N7912-P99264

PROJECT: CTO #68

SAMPLED BY: J. HILL, J. ALEXANDER      DELIVERED BY: FEDEX      DISPOSE: AFTER 26 AUG

ITEM	LOG NUMBER	SAMPLE DESCRIPTION	SAMPLED DATE/TIME	RECEIVED	MATRIX
1	WP3395-1	12TL00801	24 JUL 0730	27 JUL	AQ

DETERMINATION	METHOD	QTY	PRICE	AMOUNT
Volatile Organics by 8260B	SW8260	1	75.00	75.00

	LOG NUMBER	SAMPLE DESCRIPTION	SAMPLED DATE/TIME	RECEIVED	MATRIX
2	WP3395-2	12GLM0401	24 JUL 1005	27 JUL	AQ
	WP3395-3	12GLM0401D	24 JUL 1005		
	WP3395-4	12GLM0501	24 JUL 1008		
	WP3395-5	12GLM0301	24 JUL 1014		
	WP3395-6	12GLM0701	24 JUL 1223		
	WP3395-7	13GLM0201	24 JUL 1521		
	WP3395-8	13GLM0201D	24 JUL 1521		
	WP3395-9	13GLM0401	24 JUL 1510		
	WP3395-10	29GLM0201	26 JUL 1105		
	WP3395-11	29GLM0401	26 JUL 1125		
	WP3395-12	29GLM0401D	26 JUL 1125		
	WP3395-13	29GLM0501	26 JUL 1130		
	WP3395-14	ZBRL00101	26 JUL 1450		

DETERMINATION	METHOD	QTY	PRICE	AMOUNT
Volatile Organics by 8260B	SW8260	13	75.00	975.00
Polynuclear Aromatic Hydrocarbons	EPA 8270	13	125.00	1625.00

TOTALS		13	200.00	2600.00
--------	--	----	--------	---------

LABORATORY ORDER CONTINUED ON PAGE 2

0000060  
287 7/28/99

New England-ME Laboratory (207) 874-2400  
CONFIRMATION

Page 2

ORDER NO WP-3395

Project Manager: Andrea J. Colby

REPORT TO: Paul Calligan  
Tetra Tech NUS  
1401 Oven Park Dr., Suite 102  
Tallahassee, FL 32308

ORDER DATE: 07/27/99

PHONE: 850/385-9888

FAX: 850/385-91

DUE: 26 AUG

FAC.ID: CNC CHARLESTON

INVOICE: ACCOUNTS PAYABLE  
TETRA TECH NUS, INC.  
FOSTER PLAZA 7, 661 ANDERSEN DR.  
PITTSBURGH, PA 15220

PHONE: 412/921-7090

PO: N7912-P99264

PROJECT: CTO #68

SAMPLED BY: J. HILL, J. ALEXANDER DELIVERED BY: FEDEX DISPOSE: AFTER 26 AUG

	LOG NUMBER	SAMPLE DESCRIPTION	SAMPLED DATE/TIME	RECEIVED	MATRIX
3	WP3395-15	12GLM0101	25 JUL 1205	27 JUL	AQ
	WP3395-16	12GLM0201	25 JUL 1210		
	WP3395-17	12GLM0601	25 JUL 1215		

DETERMINATION	METHOD	QTY	PRICE	AMOUNT
Volatile Organics by 8260B	SW8260	3	75.00	225.00
Polynuclear Aromatic Hydrocarbons	EPA 8270	3	125.00	375.00
Nitrogen, Nitrate (as N)	E300	3	30.00	90.00
Sulfate (as SO4)	E300	3	0.00	0.00
GC Subcontract		3	95.00	285.00
TOTALS		3	325.00	975.00

ORDER NOTE: QC-IV NFESC  
DD(KAS007QC-DB3)  
CNC CHARLESTON

REPORT COPY: MS. LEE LECK  
TETRA TECH NUS  
FOSTER PLAZA 7  
661 ANDERSEN DR.  
PITTSBURGH, PA 15220  
REPORT & DISK

INVOICE: With Report

TOTAL ORDER AMOUNT \$3,650.00  
This is NOT an Invo

AJC/BKR

07-27Please contact KATAHDIN ANALYTICAL SERVICES promptly if you have any questi

0000061  
11/7/2010





# KATAHDIN ANALYTICAL SERVICES

## REPORT OF ANALYTICAL RESULTS

Client: Paul Calligan  
Tetra Tech NUS  
1401 Owen Park Dr.  
Suite 102  
Tallahassee, FL 32308

Proj. ID: CNC CHARLESTON

Lab Number: WP3395-7  
SDG: WP3395  
Report Date: 8/26/99  
PO No.: N7912-P99264  
Project: CTO #68  
% Solids: N/A  
Method: EPA 8270  
Date Analyzed: 8/6/99

Sample Description	Matrix	Sampled Date	Rec'd Date	Ext. Date	Ext'd By	Ext. Method	Analyst
13GLM0201	AQ	7/24/99	7/27/99	7/28/99	DS	EPA 3510	KRT

Compound	Result	Units	DF	Sample PQL	Method PQL
NAPHTHALENE	<10	ug/L	1.0	10	10
2-METHYLNAPHTHALENE	<10	ug/L	1.0	10	10
ACENAPHTHYLENE	<10	ug/L	1.0	10	10
ACENAPHTHENE	<10	ug/L	1.0	10	10
FLUORENE	<10	ug/L	1.0	10	10
PHENANTHRENE	<10	ug/L	1.0	10	10
ANTHRACENE	<10	ug/L	1.0	10	10
FLUORANTHENE	<10	ug/L	1.0	10	10
PYRENE	<10	ug/L	1.0	10	10
BENZO[A]ANTHRACENE	<10	ug/L	1.0	10	10
HRYSENE	<10	ug/L	1.0	10	10
BENZO[B]FLUORANTHENE	<10	ug/L	1.0	10	10
BENZO[K]FLUORANTHENE	<10	ug/L	1.0	10	10
BENZO[A]PYRENE	<10	ug/L	1.0	10	10
INDENO[1,2,3-CD]PYRENE	<10	ug/L	1.0	10	10
DIBENZ[A,H]ANTHRACENE	<10	ug/L	1.0	10	10
BENZO[G,H,I]PERYLENE	<10	ug/L	1.0	10	10
NITROBENZENE-D5	48	%	1.0		
2-FLUOROBIPHENYL	51	%	1.0		
TERPHENYL-D14	75	%	1.0		

port Notes:



# KATAHDIN ANALYTICAL SERVICES

## REPORT OF ANALYTICAL RESULTS

**Client:** Paul Calligan  
Tetra Tech NUS  
1401 Owen Park Dr.  
Suite 102  
Tallahassee, FL 32308  
**Proj. ID:** CNC CHARLESTON

**Lab Number:** WP3395-7  
**SDG:** WP3395  
**Report Date:** 8/26/99  
**PO No. :** N7912-P99264  
**Project:** CTO #68  
**% Solids:** N/A  
**Method:** SW8260  
**Date Analyzed:** 7/31/99

Sample Description	Matrix	Sampled Date	Rec'd Date	Ext. Date	Ext'd By	Ext. Method	Analyst
13GLM0201	AQ	7/24/99	7/27/99	7/31/99	JSS	5030	JSS

Compound	Result	Units	DF	Sample PQL	Method PQL
BENZENE	<5	ug/L	1.0	5	5
TOLUENE	<5	ug/L	1.0	5	5
1,2-DIBROMOETHANE	<5	ug/L	1.0	5	5
ETHYLBENZENE	<5	ug/L	1.0	5	5
NAPHTHALENE	<5	ug/L	1.0	5	5
MTBE	<5	ug/L	1.0	5	5
TOTAL XYLENES	<5	ug/L	1.0	5	5
DIBROMOFLUOROMETHANE	125	%	1.0		
1,2-DICHLOROETHANE-D4	127	%	1.0		
TOLUENE-D8	118	%	1.0		
P-BROMOFLUOROBENZENE	99	%	1.0		

**Report Notes:**



# KATAHDIN ANALYTICAL SERVICES

## REPORT OF ANALYTICAL RESULTS

Client: Paul Calligan  
Tetra Tech NUS  
1401 Owen Park Dr.  
Suite 102  
Tallahassee, FL 32308

Proj. ID: CNC CHARLESTON

Lab Number: WP3395-8  
SDG: WP3395  
Report Date: 8/26/99  
PO No.: N7912-P99264  
Project: CTO #68  
% Solids: N/A  
Method: EPA 8270  
Date Analyzed: 8/6/99

Sample Description	Matrix	Sampled Date	Rec'd Date	Ext. Date	Ext'd By	Ext. Method	Analyst
13GLM0201D	AQ	7/24/99	7/27/99	7/28/99	DS	EPA 3510	KRT

Compound	Result	Units	DF	Sample PQL	Method PQL
NAPHTHALENE	<10	ug/L	1.0	10	10
2-METHYLNAPHTHALENE	<10	ug/L	1.0	10	10
ACENAPHTHYLENE	<10	ug/L	1.0	10	10
ACENAPHTHENE	<10	ug/L	1.0	10	10
FLUORENE	<10	ug/L	1.0	10	10
PHENANTHRENE	<10	ug/L	1.0	10	10
ANTHRACENE	<10	ug/L	1.0	10	10
FLUORANTHENE	<10	ug/L	1.0	10	10
PYRENE	<10	ug/L	1.0	10	10
BENZO[A]ANTHRACENE	<10	ug/L	1.0	10	10
CHRYSENE	<10	ug/L	1.0	10	10
BENZO[B]FLUORANTHENE	<10	ug/L	1.0	10	10
BENZO[K]FLUORANTHENE	<10	ug/L	1.0	10	10
BENZO[A]PYRENE	<10	ug/L	1.0	10	10
INDENO[1,2,3-CD]PYRENE	<10	ug/L	1.0	10	10
DIBENZ[A,H]ANTHRACENE	<10	ug/L	1.0	10	10
BENZO[G,H,I]PERYLENE	<10	ug/L	1.0	10	10
NITROBENZENE-D5	43	%	1.0		
2-FLUOROBIPHENYL	47	%	1.0		
TERPHENYL-D14	78	%	1.0		

Report Notes:



# KATAHDIN ANALYTICAL SERVICES

## REPORT OF ANALYTICAL RESULTS

**Client:** Paul Calligan  
Tetra Tech NUS  
1401 Oven Park Dr.  
Suite 102  
Tallahassee, FL 32308

**Proj. ID:** CNC CHARLESTON

**Lab Number:** WP3395-8  
**SDG:** WP3395  
**Report Date:** 8/26/99  
**PO No. :** N7912-P99264  
**Project:** CTO #68  
**% Solids:** N/A  
**Method:** SW8260  
**Date Analyzed:** 7/31/99

Sample Description	Matrix	Sampled Date	Rec'd Date	Ext. Date	Ext'd By	Ext. Method	Analyst
13GLM0201D	AQ	7/24/99	7/27/99	7/31/99	JSS	5030	JSS

Compound	Result	Units	DF	Sample PQL	Method PQL
BENZENE	<5	ug/L	1.0	5	5
TOLUENE	<5	ug/L	1.0	5	5
1,2-DIBROMOETHANE	<5	ug/L	1.0	5	5
ETHYLBENZENE	<5	ug/L	1.0	5	5
NAPHTHALENE	<5	ug/L	1.0	5	5
MTBE	<5	ug/L	1.0	5	5
TOTAL XYLENES	<5	ug/L	1.0	5	5
DIBROMOFLUOROMETHANE	128	%	1.0		
1,2-DICHLOROETHANE-D4	127	%	1.0		
TOLUENE-D8	117	%	1.0		
P-BROMOFLUOROBENZENE	98	%	1.0		

**Report Notes:**



# KATAHDIN ANALYTICAL SERVICES

## REPORT OF ANALYTICAL RESULTS

Client: Paul Calligan  
Tetra Tech NUS  
1401 Owen Park Dr.  
Suite 102  
Tallahassee, FL 32308

Proj. ID: CNC CHARLESTON

Lab Number: WP3395-9  
SDG: WP3395  
Report Date: 8/26/99  
PO No.: N7912-P99264  
Project: CTO #68  
% Solids: N/A  
Method: EPA 8270  
Date Analyzed: 8/9/99

Sample Description	Matrix	Sampled Date	Rec'd Date	Ext. Date	Ext'd By	Ext. Method	Analyst
13GLM0401	AQ	7/24/99	7/27/99	7/28/99	DS	EPA 3510	KRT

Compound	Result	Units	DF	Sample PQL	Method PQL
NAPHTHALENE	<10	ug/L	1.0	10	10
2-METHYLNAPHTHALENE	<10	ug/L	1.0	10	10
ACENAPHTHYLENE	<10	ug/L	1.0	10	10
ACENAPHTHENE	<10	ug/L	1.0	10	10
FLUORENE	<10	ug/L	1.0	10	10
PHENANTHRENE	<10	ug/L	1.0	10	10
ANTHRACENE	<10	ug/L	1.0	10	10
FLUORANTHENE	<10	ug/L	1.0	10	10
PYRENE	<10	ug/L	1.0	10	10
BENZO[A]ANTHRACENE	<10	ug/L	1.0	10	10
CHRYSENE	<10	ug/L	1.0	10	10
BENZO[B]FLUORANTHENE	<10	ug/L	1.0	10	10
BENZO[K]FLUORANTHENE	<10	ug/L	1.0	10	10
BENZO[A]PYRENE	<10	ug/L	1.0	10	10
INDENO[1,2,3-CD]PYRENE	<10	ug/L	1.0	10	10
DIBENZO[A,H]ANTHRACENE	<10	ug/L	1.0	10	10
BENZO[G,H,I]PERYLENE	<10	ug/L	1.0	10	10
NITROBENZENE-D5	57	%	1.0		
2-FLUOROBIPHENYL	58	%	1.0		
TERPHENYL-D14	94	%	1.0		

Report Notes:



# KATAHDIN ANALYTICAL SERVICES

## REPORT OF ANALYTICAL RESULTS

**Client:** Paul Calligan  
Tetra Tech NUS  
1401 Owen Park Dr.  
Suite 102  
Tallahassee, FL 32308  
**Proj. ID:** CNC CHARLESTON

**Lab Number:** WP3395-9  
**SDG:** WP3395  
**Report Date:** 8/26/99  
**PO No. :** N7912-P99264  
**Project:** CTO #68  
**% Solids:** N/A  
**Method:** SW8260  
**Date Analyzed:** 8/2/99

Sample Description	Matrix	Sampled Date	Rec'd Date	Ext. Date	Ext'd By	Ext. Method	Analyst
13GLM0401	AQ	7/24/99	7/27/99	8/2/99	KMC	5030	KMC

Compound	Result	Units	DF	Sample PQL	Method PQL
BENZENE	<5	ug/L	1.0	5	5
TOLUENE	<5	ug/L	1.0	5	5
1,2-DIBROMOETHANE	<5	ug/L	1.0	5	5
ETHYLBENZENE	<5	ug/L	1.0	5	5
NAPHTHALENE	<5	ug/L	1.0	5	5
MTBE	<5	ug/L	1.0	5	5
TOTAL XYLENES	<5	ug/L	1.0	5	5
DIBROMOFLUOROMETHANE	108	%	1.0		
1,2-DICHLOROETHANE-D4	106	%	1.0		
TOLUENE-D8	114	%	1.0		
P-BROMOFLUOROBENZENE	95	%	1.0		

**Report Notes:**

**4B**  
**SEMIVOLATILE ORGANICS METHOD BLANK SUMMARY**

EPA SAMPLE NO.

**SBLK;072899**

Lab Name: Katahdin Analytical Services

SDG No.: WP3395

Lab File ID: Z1645

Lab Sample ID: SBLK;072899

Instrument ID: 5972-Z

Date Extracted: 7/28/99

GC Column: RTX-624 ID: 0.18 (mm)

Date Analyzed: 08/05/99

Matrix: (soil/water) WATER

Time Analyzed: 13:28

Level: (low/med) LOW

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES, LCS'S, MS AND MSD'S

Client Sample ID	Lab Sample ID	Lab Data File	Date Injected	Time Injected
LCS;072899	LCS;072899	Z1646	8/5/99	2:16:00 PM
LCSD;072899	LCSD;072899	Z1647	8/5/99	3:03:00 PM
12GLM0401	WP3395-2	Z1651	8/5/99	6:09:00 PM
12GLM0401D	WP3395-3	Z1652	8/5/99	6:56:00 PM
12GLM0501	WP3395-4	Z1653	8/5/99	7:43:00 PM
12GLM0301	WP3395-5	Z1656	8/6/99	11:14:00 AM
12GLM0701	WP3395-6	Z1657	8/6/99	12:00:00 PM
13GLM0201	WP3395-7	Z1658	8/6/99	12:45:00 PM
13GLM0201D	WP3395-8	Z1659	8/6/99	1:32:00 PM
29GLM0201	WP3395-10	Z1661	8/6/99	3:04:00 PM
29GLM0401	WP3395-11	Z1662	8/6/99	3:51:00 PM
29GLM0401D	WP3395-12	Z1663	8/6/99	4:38:00 PM
29GLM0501	WP3395-13	Z1664	8/6/99	5:25:00 PM
ZBRL00101	WP3395-14	Z1665	8/6/99	6:13:00 PM
12GLM0101	WP3395-15	Z1666	8/6/99	7:00:00 PM
12GLM0201	WP3395-16	Z1667	8/6/99	7:47:00 PM
12GLM0601	WP3395-17	Z1668	8/6/99	8:35:00 PM
13GLM0401	WP3395-9	Z1676	8/9/99	1:57:00 PM



# KATAHDIN ANALYTICAL SERVICES

## REPORT OF ANALYTICAL RESULTS

**Client:** Paul Calligan  
Tetra Tech NUS  
1401 Owen Park Dr.  
Suite 102  
Tallahassee, FL 32308

**Proj. ID:** CNC CHARLESTON

**Lab Number:** SBLK072899  
**SDG:** WP3395  
**Report Date:** 8/26/99  
**PO No. :** N7912-P99264  
**Project:** CTO #68  
**% Solids:** N/A  
**Method:** EPA 8270  
**Date Analyzed:** 8/5/99

Sample Description	Matrix	Sampled Date	Rec'd Date	Ext. Date	Ext'd By	Ext. Method	Analyst
SBLK072899	AQ	-	-	7/28/99	DS	EPA 3510	KRT

Compound	Result	Units	DF	Sample POL	Method POL
NAPHTHALENE	<10	ug/L	1.0	10	10
2-METHYLNAPHTHALENE	<10	ug/L	1.0	10	10
ACENAPHTHYLENE	<10	ug/L	1.0	10	10
ACENAPHTHENE	<10	ug/L	1.0	10	10
FLUORENE	<10	ug/L	1.0	10	10
PHENANTHRENE	<10	ug/L	1.0	10	10
ANTHRACENE	<10	ug/L	1.0	10	10
FLUORANTHENE	<10	ug/L	1.0	10	10
PYRENE	<10	ug/L	1.0	10	10
BENZO[A]ANTHRACENE	<10	ug/L	1.0	10	10
CHRYSENE	<10	ug/L	1.0	10	10
BENZO[B]FLUORANTHENE	<10	ug/L	1.0	10	10
BENZO[K]FLUORANTHENE	<10	ug/L	1.0	10	10
BENZO[A]PYRENE	<10	ug/L	1.0	10	10
INDENO[1,2,3-CD]PYRENE	<10	ug/L	1.0	10	10
DIBENZ[A,H]ANTHRACENE	<10	ug/L	1.0	10	10
BENZO[G,H,I]PERYLENE	<10	ug/L	1.0	10	10
NITROBENZENE-D5	60	%	1.0		
2-FLUOROBIPHENYL	57	%	1.0		
TERPHENYL-D14	78	%	1.0		

**Report Notes:**



# Katahdin Analytical Services

## LCS/LCSD Report

Sample	File Name	Date Acquired	Time inj	Analyst	Matrix	Method
LCS;072899	Z1646	8/5/99	14:16	KRT	AQ	8270
LCSD;072899	Z1647	8/5/99	15:03	KRT	AQ	8270

Compound Name	Spk Amt ug/L	LCS Result ug/L	LCSD Result ug/L	LCS Rec (%)	LCSD Rec (%)	Rec. Limits (%)	RPD (%)	RPD Limit (%)
2-METHYLNAPHTHALENE	50	22.6	33.5	*45	*67	70-130	*39	30
ACENAPHTHENE	50	26.3	35.2	*53	70	70-130	28	30
ACENAPHTHYLENE	50	26.1	35.3	*52	71	70-130	*31	30
ANTHRACENE	50	33.7	40.7	*67	81	70-130	19	30
BENZO[A]ANTHRACENE	50	29.7	36.7	*59	73	70-130	21	30
BENZO[A]PYRENE	50	29.7	35.9	*59	72	70-130	20	30
BENZO[B]FLUORANTHENE	50	27.0	34.3	*54	*69	70-130	24	30
BENZO[G,H,I]PERYLENE	50	28.2	31.5	*56	*63	70-130	12	30
BENZO[K]FLUORANTHENE	50	35.4	42.8	71	86	70-130	19	30
CHRYSENE	50	32.2	37.6	*64	75	70-130	16	30
DIBENZ[A,H]ANTHRACENE	50	26.6	30.0	*53	*60	70-130	12	30
FLUORANTHENE	50	32.0	37.4	*64	75	70-130	16	30
FLUORENE	50	27.3	34.0	*55	*68	70-130	21	30
BENZO[1,2,3-CD]PYRENE	50	24.7	25.8	*49	*52	70-130	5.9	30
ITHALENE	50	21.9	33.3	*44	*67	70-130	*41	30
PHENANTHRENE	50	30.6	38.3	*61	77	70-130	23	30
PYRENE	50	31.7	41.2	*63	82	70-130	26	30

$$RPD = (lcs\ rec - lcsd\ rec) / [(lcsd\ rec + lcsd\ rec)/2] * 100$$

\* Out of Limits

1

0000045

4A  
VOLATILE ORGANICS METHOD BLANK SUMMARY

EPA SAMPLE NO.

**VBLS31A**

Lab Name: Katahdin Analytical Services

SDG No.: WP3395

Lab File ID: S5732

Lab Sample ID: VBLKS31A

Date Analyzed: 07/31/99

Time Analyzed: 10:16

GC Column: RTX-624 ID: 0.18 (mm)

Heated Purge: (Y/N) N

Instrument ID: 5972-S

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES, LCS'S, MS AND MSD'S

Client Sample ID	Lab Sample ID	Lab Data File	Date Injected	Time Injected
LCSS31A	LCSS31A	S5731	7/31/99	9:19:00 AM
12TL00801	WP3395-1	S5737	7/31/99	1:51:00 PM
12GLM0401	WP3395-2	S5738	7/31/99	2:28:00 PM
12GLM0401D	WP3395-3	S5739	7/31/99	3:05:00 PM
12GLM0501	WP3395-4	S5740	7/31/99	3:42:00 PM
12GLM0301	WP3395-5	S5741	7/31/99	4:20:00 PM
12GLM0701	WP3395-6	S5742	7/31/99	4:57:00 PM
13GLM0201	WP3395-7	S5743	7/31/99	5:35:00 PM
13GLM0201D	WP3395-8	S5744	7/31/99	6:12:00 PM



# KATAHDIN ANALYTICAL SERVICES

## REPORT OF ANALYTICAL RESULTS

**Client:** Paul Calligan  
Tetra Tech NUS  
1401 Oven Park Dr.  
Suite 102  
Tallahassee, FL 32308  
**Proj. ID:** CNC CHARLESTON

**Lab Number:** VBLKS31A  
**SDG:** WP3395  
**Report Date:** 8/26/99  
**PO No. :** N7912-P99264  
**Project:** CTO #68  
**% Solids:** N/A  
**Method:** SW8260  
**Date Analyzed:** 7/31/99

Sample Description	Matrix	Sampled Date	Rec'd Date	Ext. Date	Ext'd By	Ext. Method	Analyst
VBLKS31A	AQ	-	-	7/31/99	JSS	5030	JSS

Compound	Result	Units	DF	Sample PQL	Method PQL
BENZENE	<5	ug/L	1.0	5	5
TOLUENE	<5	ug/L	1.0	5	5
1,2-DIBROMOETHANE	<5	ug/L	1.0	5	5
ETHYLBENZENE	<5	ug/L	1.0	5	5
NAPHTHALENE	<5	ug/L	1.0	5	5
MTBE	<5	ug/L	1.0	5	5
TOTAL XYLENES	<5	ug/L	1.0	5	5
DIBROMOFLUOROMETHANE	103	%	1.0		
1,2-DICHLOROETHANE-D4	101	%	1.0		
TOLUENE-D8	112	%	1.0		
P-BROMOFLUOROBENZENE	103	%	1.0		

**Report Notes:**

4A  
VOLATILE ORGANICS METHOD BLANK SUMMARY

EPA SAMPLE NO.

**VBLS02A**

Lab Name: Katahdin Analytical Services

SDG No.: WP3395

Lab File ID: S5770

Lab Sample ID: VBLS02A

Date Analyzed: 08/02/99

Time Analyzed: 9:50

GC Column: RTX-624 ID: 0.18 (mm)

Heated Purge: (Y/N) N

Instrument ID: 5972-S

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES, LCS'S, MS AND MSD'S

Client Sample ID	Lab Sample ID	Lab Data File	Date Injected	Time Injected
LCSS02A	LCSS02A	S5769	8/2/99	9:02:00 AM
13GLM0401	WP3395-9	S5771	8/2/99	10:45:00 AM
29GLM0201	WP3395-10	S5772	8/2/99	11:22:00 AM
29GLM0401	WP3395-11	S5773	8/2/99	12:00:00 PM
29GLM0401D	WP3395-12	S5774	8/2/99	12:37:00 PM



# KATAHDIN ANALYTICAL SERVICES

## REPORT OF ANALYTICAL RESULTS

Client: Paul Calligan  
Tetra Tech NUS  
1401 Owen Park Dr.  
Suite 102  
Tallahassee, FL 32308  
Proj. ID: CNC CHARLESTON

Lab Number: VBLKS02A  
SDG: WP3395  
Report Date: 8/26/99  
PO No.: N7912-P99264  
Project: CTO #68  
% Solids: N/A  
Method: SW8260  
Date Analyzed: 8/2/99

Sample Description	Matrix	Sampled Date	Rec'd Date	Ext. Date	Ext'd By	Ext. Method	Analyst
VBLKS02A	AQ	-	-	8/2/99	KMC	5030	KMC

Compound	Result	Units	DF	Sample PQL	Method PQL
BENZENE	<5	ug/L	1.0	5	5
TOLUENE	<5	ug/L	1.0	5	5
1,2-DIBROMOETHANE	<5	ug/L	1.0	5	5
ETHYLBENZENE	<5	ug/L	1.0	5	5
NAPHTHALENE	<5	ug/L	1.0	5	5
MTBE	<5	ug/L	1.0	5	5
TOTAL XYLENES	<5	ug/L	1.0	5	5
DIBROMOFLUOROMETHANE	104	%	1.0		
1,2-DICHLOROETHANE-D4	102	%	1.0		
TOLUENE-D8	112	%	1.0		
2-BROMOFLUOROBENZENE	98	%	1.0		

Report Notes:

**Katahdin Analytical Services**  
**8260 LCS Recovery Sheet**

**Lab File: S5731**

**Sample ID: LCSS31A**

**Date Run: 7/31/99**

**Analyst: JSS**

**Time Injected 9:19:00 AM**

**Matrix: AQ**

<b>Compound Name</b>	<b>Spike Amt (ug/L)</b>	<b>Result (ug/L)</b>	<b>Rec (%)</b>	<b>Limits (%)</b>
1,2-DIBROMOETHANE	50	50.1	100	60-140
BENZENE	50	53.0	106	60-140
ETHYLBENZENE	50	60.0	120	60-140
MTBE	50	53.9	108	60-140
NAPHTHALENE	50	62.2	124	60-140
TOLUENE	50	58.1	116	60-140
TOTAL XYLENES	150	187	124	60-140

**\* Out of Limits**

**1**

**0000052**

**Katahdin Analytical Services**  
**8260 LCS Recovery Sheet**

Lab File: S5769

Sample ID: LCSS02A

Date Run: 8/2/99

Analyst: KMC

Time Injected 9:02:00 AM

Matrix: AQ

Compound Name	Spike Amt (ng/L)	Result (ng/L)	Rec (%)	Limits (%)
1,2-DIBROMOETHANE	50	48.4	97	60-140
BENZENE	50	50.6	101	60-140
ETHYLBENZENE	50	59.4	119	60-140
MTBE	50	52.3	104	60-140
NAPHTHALENE	50	62.6	125	60-140
TOLUENE	50	54.4	109	60-140
TOTAL XYLENES	150	186	124	60-140

\* Out of Limits

1

0000053

ENSR  
Air Toxics Specialty Laboratory  
42 Nagog Park  
Acton, MA 01720

DATE: August 24, 1999

TO: Andrea Colby  
Katahdin Analytical  
340 County Road No. 5  
P.O. Box 720  
Westbrook, ME 04098

Re: Organic Analyses of Aqueous Samples by Gas Chromatography Flame  
Ionization Detection (GC/FID)

PROJECT #: **8601-008-200**

LAB ID #: **990121**

**ANALYTICAL PROCEDURE:**

Three (3) aqueous samples were analyzed under the guidelines of EPA SW846 Method 3810.

A Hewlett Packard 5890 series II gas chromatograph (GC) equipped with a Hewlett Packard flame ionization detector (FID) was used for the analysis. A 1.0 mL headspace aliquot of each sample was injected into the column for analysis. The operating conditions of the GC/FID are listed in Table 1. A five point calibration was performed for the target analyte, methane.

No problems occurred during sample receipt or log-in.



#### QUALITY CONTROL:

1. A laboratory blank was analyzed daily in the same manner as the samples. Methane was present in levels below the detection limit in the laboratory blank. Sample data has not been qualified.
2. A Matrix Spike was performed on the following sample:  
WP3395-16(B)

All recoveries were within QC limits.

Date Samples Received by the Laboratory: 7/28/99

Date Analysis Started: 8/4/99

C:\My Documents\katrpt9.doc



October 1, 1999

Mr. Paul Calligan

Tetra Tech Nus

1401 Oven Park Dr., Suite 102

Tallahassee, FL 32308

RE: Katahdin Lab Number: WP3703

Project ID: CNC Charleston

Project Manager: Ms. Andrea J. Colby

Sample Receipt Date(s): 8/24/99

Dear Mr. Calligan:

Please find enclosed the following information:

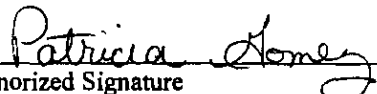
- \* Report of Analysis
- \* Quality Control Data Summary
- \* Chain of Custody
- \* Confirmation

Should you have any questions or comments concerning this Report of Analysis, please do not hesitate to contact the project manager listed above. This cover letter is an integral part of the ROA.

We appreciate your continued use of our laboratory and look forward to working with you in the future. The following signature indicates technical review and acceptance of the data.

Sincerely,

KATAHDIN ANALYTICAL SERVICES

  
Authorized Signature

10/1/99  
Date

SDG NARRATIVE  
KATAHDIN ANALYTICAL SERVICES  
TETRA TECH NUS  
CASE CNC CHARLESTON

Sample Receipt

The following samples were received on August 24, 1999 and were logged in under Katahdin Analytical Services work order number WP3703 for a hardcopy due date of September 23, 1999.

KATAHDIN <u>Sample No.</u>	TTNUS <u>Sample Identification</u>	GEL <u>Sample Identification</u>
WP3703-1	26GLM0801	
WP3703-2	26GLM10D01	
WP3703-3	26GLM0401	
WP3703-4	26GLM0601	
WP3703-5	26GLM0501	
WP3703-6	26GLM0701	
WP3703-7	26GLM0701D	
WP3703-8	13GLM0601	
WP3703-9	32GLM0601	
WP3703-10	21GLM0301	
WP3703-11	21GLM0201	
WP3703-12	21GLM0201D	
WP3703-13	21GLM07D01	
WP3703-14	21GLM0801	
WP3703-15	26GLM09D01	
WP3703-16	26GLM0301	
WP3703-17	26GLM0201	
WP3703-18	30GLM0301	
WP3703-19	30GLM0701	
WP3703-20	30GLM0101	
WP3703-21	30GLM0501	
WP3703-22	26TL00101	
WP3703-23	24SLB070405	
WP3703-24	24SLB040304	9908879-01
WP3703-25	24SLB020203	
WP3703-26	24SLB040304D	9908879-05
WP3703-27	42SLP200304	
WP3703-28	42SLP210304	

The samples were logged in for the analyses specified on the chain of custody form. All problems encountered and resolved during sample receipt have been documented on the applicable chain of custody forms.

Sample analyses have been performed by the methods as noted herein.

### Volatile Organic Analysis

Six soil/sediment and twenty-two aqueous samples were received by the Katahdin Analytical Services, Inc. GC/MS laboratory on August 24, 1999 and were specified to be analyzed by USEPA method 8260B for the analytes benzene, toluene, ethylbenzene, xylenes, MTBE, naphthalene, and EDB.

Analyses for this workorder were performed on the 5970-Q (aqueous), 5972-F (aqueous), 5973-U (low level soil), and 5972-M (low level soil) instruments. A VSTD050 (50 ppb standard) was used for the continuing calibration standard. Internal standard and surrogate compounds were also spiked at 50 ppb.

Batch QC (VBLK, and LCS) was performed in each twelve-hour window. Results are included in this data package. The LCS QC samples were spiked with the entire list of compounds quantitated for at 50 ppb. Matrix spike/matrix spike duplicate pairs were performed on samples WP3703-2 (aqueous) and WP3703-28 (soil).

Initial analysis of sample WP3703-20 yielded a concentration of naphthalene over the upper limit of the calibration curve. Reanalysis occurred at a 1:2 dilution successfully. Both sets of data are included in this data package.

Several manual integrations were performed due to split peaks; all have been flagged with a "M" (software-generated) on the pertinent quantitation reports. All "M" flags have been dated and initialed by the analyst performing the integration. In addition, all "M" flags have been reviewed and approved by the GC/MS supervisor. Copies of each manual integration are included in the pertinent quantitation reports.

No other protocol deviations were noted by the volatile organics staff.

### Semivolatile Organic Analysis

Six soil/sediment and twenty-one aqueous samples were received by Katahdin Analytical Services laboratory on August 24, 1999 for analysis in accordance with 8270C for a client specified PAH list of analytes.

Extraction of the soil samples occurred following USEPA method 3550 on August 24 and 25, 1999. A laboratory control spike was extracted in each batch, along with a matrix spike/matrix spike duplicate pair on sample WP3703-26 in the 08/25/99 extraction batch.

Extraction of aqueous samples WP3703 1-13, 15, 16, 18-21 were extracted following USEPA method 3510 on August 25, 1999. A laboratory control spike was extracted in the batch, along with a matrix spike/matrix spike duplicate pair on sample WP3703-2. Sample WP3703-17 was

extracted on August 26, 1999, following USEPA method 3510. A laboratory control spike was extracted in the batch.

The original extract for sample WP3703-14 was lost during the concentration process. This sample was reextracted on September 8, 1999, outside of extraction holding times. A laboratory control spike was extracted in this batch.

Analysis of sample WP3703-3 yielded a low recovery of the surrogate nitrobenzene-d5. No reextraction was performed due to the obvious matrix/chromatographic interferences.

Initial analysis of sample WP3703-13 yielded a low surrogate recovery. Reanalysis yielded a similar result. The sample was reextracted on September 10, 1999, outside of extraction holding times, following USEPA method 3510. Surrogate recoveries for this reextracted sample met QC windows. All three sets of data for this sample are included in this data package.

Initial analysis of sample WP3703-16 yielded low surrogate recoveries. The sample was reextracted on September 10, 1999, outside of extraction holding times, following USEPA method 3510. Surrogate recoveries for this reextracted sample met QC windows. Both sets of data for this sample are included in this data package.

Initial analysis of sample WP3703-20 yielded concentrations of naphthalene and 2-methylnaphthalene over the upper limit of the calibration curve. Reanalysis occurred at a 1:2 dilution successfully. Both sets of data are included in this data package.

Several manual integrations were performed due to split peaks; all have been flagged with a "M" by the data system. All manual integrations have been dated and initialed by the responsible analyst. Copies of each manual integration are included in the data package. All manual integrations have been reviewed and approved by the GC/MS supervisor.

No other protocol deviations were noted by the semivolatiles organics staff.

#### Wet Chemistry Analysis

Alternate method for analysis of nitrate was approved by Kelly Johnson-Carper due to holding time constraints upon sample arrival. All analyses were performed within hold time. No protocol deviations were noted by the Wet Chemistry staff.

#### Metals Analysis

The samples of Katahdin Work Order WP3703 were prepared and analyzed for metals in accordance with the "Test Methods for Evaluating Solid Waste", SW-846, November 1986, Third Edition.

### Inductively-Coupled Plasma (ICP) Atomic Emission Spectroscopic Analysis

Soil-matrix Katahdin Sample Nos. WP3703-(24, 25, 26) were originally digested for ICP analysis on 08/26/99 (QC Batch PH261CS0) in accordance with USEPA Method 3050B. The measured zinc concentration (0.16 mg/L) of the preparation blank that is associated with QC Batch PH261CS0 exceeds the laboratory's acceptance limits, and therefore redigestion of Katahdin Sample Nos. WP3703-(24, 25, 26) for zinc was required. In addition, the digestate of Katahdin Sample No. WP3703-25 was spilled (and lost) before ICP analyses of antimony, arsenic, iron, lead, selenium, and thallium were completed, so redigestion of this sample was necessary to provide additional digestate volume for analysis. For these reasons, Katahdin Sample Nos. WP3703-(24, 25, 26) were redigested for ICP analysis on 09/02/99 (QC Batch PI021CS0, containing Katahdin Sample No. WP3703-25) and 09/13/99 (QC Batch PI13ICS1, containing Katahdin Sample Nos. WP3703-24 and WP3703-26). These redigestates are identified throughout the raw data by the suffix "R" appended to the Katahdin sample number, e.g. "WP3703-025R".

The measured recovery (161.9%) for the laboratory control sample that is associated with QC Batch PI021CS0 exceeds the laboratory's acceptance limits, and Katahdin Sample No. WP3703-25 therefore required redigestion for iron analysis. Katahdin Sample No. WP3703-25 was redigested a second time for ICP analysis on 09/14/99 (QC Batch PI14ICS0). This redigestate is identified throughout the raw data by the suffix "X" appended to the Katahdin sample number, e.g. "WP3703-025X".

ICP analyses of Katahdin Work Order WP3703 sample digestates were performed in accordance with USEPA Method 6010B, using a Thermo Jarrell Ash (TJA) Trace ICP spectrometer and a TJA 61 ICP spectrometer. All samples were analyzed within holding times and all QC criteria were met with the following comments or exceptions:

Some of the results for run QC samples (ICV, ICB, CCV, CCB, ICSA, and ICSAB) included in the accompanying data package may have exceeded acceptance limits for some elements. Please note that all client samples and batch QC samples associated with out-of-control results for run QC samples were subsequently reanalyzed for the analytes in question.

### Analysis of Mercury by Cold Vapor Atomic Absorption (CVAA) Spectrophotometry

Soil-matrix Katahdin Sample Nos. WP3703-(24, 25, 26) were digested for mercury analysis on 09/03/99 (QC Batch PI03HGS0) in accordance with USEPA Method 7470A. Katahdin Sample No. WP3703-24 was prepared with duplicate matrix-spiked aliquots.

Mercury analyses of Katahdin Work Order WP3703 sample digestates were performed using a Leeman Labs PS200 automated mercury analyzer. All samples were analyzed within holding times and all run QC criteria were met.

# KATAHDIN ANALYTICAL SERVICES, INC.

## SAMPLE RECEIPT CONDITION REPORT

Tel. (207) 874-2400

Fax (207) 775-4029

LAB (WORK ORDER) # WP 3703

PAGE: 1 OF 5

COOLER: 1 OF 5

COC# -

SDG# -

DATE / TIME RECEIVED: 8-24-99 0850

DELIVERED BY: FedEx

RECEIVED BY: Ba

LIMS ENTRY BY: BEK

LIMS REVIEW BY / PM: ADL

CLIENT: Tetra Tech

PROJECT: CNC

	YES	NO	EXCEPTIONS	COMMENTS	RESOLUTION
1. CUSTODY SEALS PRESENT / INTACT?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
2. CHAIN OF CUSTODY PRESENT IN THIS COOLER?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
3. CHAIN OF CUSTODY SIGNED BY CLIENT?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
4. CHAIN OF CUSTODY MATCHES SAMPLES?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
5. TEMPERATURE BLANKS PRESENT?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	TEMP BLANK TEMP (°C) = <u>3.1</u>	
6. SAMPLES RECEIVED AT 4°C ± .2?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	COOLER TEMP (°C) = <u>NA</u>	
ICE ICE PACKS PRESENT (Y or N)?				(RECORD COOLER TEMP ONLY IF TEMP BLANK IS NOT PRESENT)	
7. VOLATILES FREE OF HEADSPACE?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
8. TRIP BLANK PRESENT IN THIS COOLER	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
9. PROPER SAMPLE CONTAINERS AND VOLUME?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
10. SAMPLES WITHIN HOLD TIME UPON RECEIPT?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
11. SAMPLES PROPERLY PRESERVED <sup>(1)</sup> ?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>		
12. CORRECTIVE ACTION REPORT FILED?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	N/A		

13. ANALYTICAL PROGRAMS (CIRCLE ONE) COMMERCIAL CLP HAZWRAP NFESC ACOE AFCEE OTHER (STATE OF ORIGIN):

LOG - IN NOTES<sup>(1)</sup>:

<sup>(1)</sup> Use this space (and additional sheets if necessary) to document samples that are received broken or compromised, C-O-C discrepancies, radiation checks, residual chlorine check, results of pH check if required. If samples required pH adjustment, record volume and type of preservative added.

**KATAHDIN ANALYTICAL SERVICES, INC.**  
**SAMPLE RECEIPT CONDITION REPORT**

Tel. (207) 874-2400

Fax (207) 775-4029

LAB (WORK ORDER) # WP3703

PAGE: 2 OF 5

COOLER: 2 OF 5

COC# —

SDG# —

DATE / TIME RECEIVED: 8-24-99 0850

DELIVERED BY: FedEx

RECEIVED BY: Sam

LIMS ENTRY BY: BEW

LIMS REVIEW BY / PM: ADC

CLIENT: Tetra Tech

PROJECT: CNC

	YES	NO	EXCEPTIONS	COMMENTS	RESOLUTION
1. CUSTODY SEALS PRESENT / INTACT?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>		
2. CHAIN OF CUSTODY PRESENT IN THIS COOLER?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>		
3. CHAIN OF CUSTODY SIGNED BY CLIENT?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
4. CHAIN OF CUSTODY MATCHES SAMPLES?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
5. TEMPERATURE BLANKS PRESENT?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	TEMP BLANK TEMP (°C) = <u>0.6</u>	<u>ATC notified and called allign by fax 8/24/99</u>
6. SAMPLES RECEIVED AT 4°C +/- 2°?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	COOLER TEMP (°C) = <u>NA</u>	
<u>ICE</u> / ICE PACKS PRESENT <u>Y</u> or N?				(RECORD COOLER TEMP ONLY IF TEMP BLANK IS NOT PRESENT)	
7. VOLATILES FREE OF HEADSPACE?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>		
8. TRIP BLANK PRESENT IN THIS COOLER	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>		
9. PROPER SAMPLE CONTAINERS AND VOLUME?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
10. SAMPLES WITHIN HOLD TIME UPON RECEIPT?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
11. SAMPLES PROPERLY PRESERVED <sup>(1)</sup> ?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>		
12. CORRECTIVE ACTION REPORT FILED?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	N/A		
13. ANALYTICAL PROGRAMS (CIRCLE ONE) COMMERCIAL CLP HAZWRAP <u>NFESC</u> ACOE AFCEE OTHER (STATE OF ORIGIN):					

LOG - IN NOTES<sup>(1)</sup>:

<sup>(1)</sup> Use this space (and additional sheets if necessary) to document samples that are received by check or compromised, C-O-C discrepancies, radiation checks, residual chlorine check, results of pH adjustment. If samples required pH adjustment, record volume and type of preservative.



**KATAHDIN ANALYTICAL SERVICES, INC.**  
**SAMPLE RECEIPT CONDITION REPORT**  
Tel. (207) 874-2400  
Fax (207) 775-4029

LAB (WORK ORDER) # WP3703

PAGE: 3 OF 5

COOLER: 3 OF 5

CLIENT: Tetra Tech

COC# -

SDG# -

DATE / TIME RECEIVED: 8-24-99 0850

DELIVERED BY: FedEx

RECEIVED BY: Se

LIMS ENTRY BY: BK

LIMS REVIEW BY / PM: APC

PROJECT: CNC

	YES	NO	EXCEPTIONS	COMMENTS	RESOLUTION
1. CUSTODY SEALS PRESENT / INTACT?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
2. CHAIN OF CUSTODY PRESENT IN THIS COOLER?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>		
3. CHAIN OF CUSTODY SIGNED BY CLIENT?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
4. CHAIN OF CUSTODY MATCHES SAMPLES?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
5. TEMPERATURE BLANKS PRESENT?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	TEMP BLANK TEMP (°C)=	
6. SAMPLES RECEIVED AT 4°C +/- 2?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	COOLER TEMP (°C)= <u>3.1</u> NA	
(ICE) ICE PACKS PRESENT (Y) or N?				(RECORD COOLER TEMP ONLY IF TEMP BLANK IS NOT PRESENT)	
7. VOLATILES FREE OF HEADSPACE?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>		
8. TRIP BLANK PRESENT IN THIS COOLER	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>		
9. PROPER SAMPLE CONTAINERS AND VOLUME?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
10. SAMPLES WITHIN HOLD TIME UPON RECEIPT?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
11. SAMPLES PROPERLY PRESERVED <sup>(1)</sup> ?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>		
12. CORRECTIVE ACTION REPORT FILED?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	N/A		
13. ANALYTICAL PROGRAMS (CIRCLE ONE) COMMERCIAL CLP HAZWRAP <u>NFESC</u> ACOE AFCEE OTHER (STATE OF ORIGIN):					

LOG - IN NOTES<sup>(1)</sup>:

<sup>(1)</sup> Use this space (and additional sheets if necessary) to document samples that are received broken or compromised, C-O-C discrepancies, radiation checks, residual chlorine check, results of pH check if required. If samples required pH adjustment, record volume and type of preservative added.

**KATAHDIN ANALYTICAL SERVICES, INC.**  
**SAMPLE RECEIPT CONDITION REPORT**

Tel. (207) 874-2400  
Fax (207) 775-4029

CLIENT: Tetra Tech

PROJECT: CNC

LAB (WORK ORDER) # WP 3703

PAGE: 4 OF 5

COOLER: 4 OF 5

COC# -

SDG# -

DATE / TIME RECEIVED: 8-24-99 0850

DELIVERED BY: FedEx

RECEIVED BY: Sc

LIMS ENTRY BY: BFW

LIMS REVIEW BY / PM: ACL

	YES	NO	EXCEPTIONS	COMMENTS	RESOLUTION
1. CUSTODY SEALS PRESENT / INTACT?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
2. CHAIN OF CUSTODY PRESENT IN THIS COOLER?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>		
3. CHAIN OF CUSTODY SIGNED BY CLIENT?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
4. CHAIN OF CUSTODY MATCHES SAMPLES?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
5. TEMPERATURE BLANKS PRESENT?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	TEMP BLANK TEMP (°C) = <u>LO</u>	<u>AK notified about calibration bug for 8/24/99</u>
6. SAMPLES RECEIVED AT 4°C +/- 2° (ICE) ICE PACKS PRESENT (Y or N)?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	COOLER TEMP (°C) = <u>NA</u>	
7. VOLATILES FREE OF HEADSPACE?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	(RECORD COOLER TEMP ONLY IF TEMP BLANK IS NOT PRESENT)	
8. TRIP BLANK PRESENT IN THIS COOLER	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>		
9. PROPER SAMPLE CONTAINERS AND VOLUME?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
10. SAMPLES WITHIN HOLD TIME UPON RECEIPT?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
11. SAMPLES PROPERLY PRESERVED <sup>(1)</sup> ?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>		
12. CORRECTIVE ACTION REPORT FILED?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	N/A		
13. ANALYTICAL PROGRAMS (CIRCLE ONE) COMMERCIAL CLP HAZWRAP <u>MFESC</u> ACOE AFCEE OTHER (STATE OF ORIGIN):					

LOG - IN NOTES<sup>(1)</sup>:

<sup>(1)</sup> Use 1" x 3" card (and additional sheets if necessary) to document samples that are received in or compromised, C-O-C discrepancies, radiation checks, residual chlorine check results of pH and check. Required. If samples required pH adjustment, record volume and type of preservative.

**KATAHDIN ANALYTICAL SERVICES, INC.**  
**SAMPLE RECEIPT CONDITION REPORT**

Tel. (207) 874-2400  
Fax (207) 775-4029

CLIENT: Tetra Tech

PROJECT: CNC

LAB (WORK ORDER) # WP3703

PAGE: 5 OF 5

COOLER: 5 OF 5

COC# =

SDG# =

DATE / TIME RECEIVED: 8-24-99 0850

DELIVERED BY: FedEx

RECEIVED BY: Sc

LIMS ENTRY BY: BEA

LIMS REVIEW BY / PM: ALC

	YES	NO	EXCEPTIONS	COMMENTS	RESOLUTION
1. CUSTODY SEALS PRESENT / INTACT?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
2. CHAIN OF CUSTODY PRESENT IN THIS COOLER?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>		
3. CHAIN OF CUSTODY SIGNED BY CLIENT?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
4. CHAIN OF CUSTODY MATCHES SAMPLES?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>		
5. TEMPERATURE BLANKS PRESENT?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	TEMP BLANK TEMP (°C) = <u>1.8</u>	<u>ALC notified David Calligan by fax 8/24/99.</u>
6. SAMPLES RECEIVED AT 4°C +/- 2? (ICE / ICE PACKS PRESENT <u>Y</u> or <u>N</u> ?)	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	COOLER TEMP (°C) = <u>NA</u> (RECORD COOLER TEMP ONLY IF TEMP BLANK IS NOT PRESENT)	
7. VOLATILES FREE OF HEADSPACE?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>		
8. TRIP BLANK PRESENT IN THIS COOLER	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>		
9. PROPER SAMPLE CONTAINERS AND VOLUME?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
10. SAMPLES WITHIN HOLD TIME UPON RECEIPT?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
11. SAMPLES PROPERLY PRESERVED <sup>(1)</sup> ?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>		
12. CORRECTIVE ACTION REPORT FILED?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<u>N/A</u>		

13. ANALYTICAL PROGRAMS (CIRCLE ONE) COMMERCIAL CLP HAZWRAP NFESC ACOE AFCEE OTHER (STATE OF ORIGIN):

LOG - IN NOTES<sup>(1)</sup>:

\* 1 of 2 PAH bottles for sample 266LM09D01 is labeled 266LM0901 (date/time matches)

<sup>(1)</sup> Use this space (and additional sheets if necessary) to document samples that are received broken or compromised, C-O-C discrepancies, radiation checks, residual chlorine check, results of pH check if required. If samples required pH adjustment, record volume and type of preservative added.



340 County Road No. 5  
P.O. Box 720  
Westbrook, ME 04098  
Tel: (207) 874-2400  
Fax: (207) 775-4029

# CHAIN of CUSTODY

PLEASE PRINT IN PEN

Page 1 of 2

Client <b>Tetra Tech NUS</b>	Contact <b>Bryn Howze</b>	Phone # <b>(843) 554-4925</b>	Fax # <b>( )</b>
Address <b>NH-21 Ave. H</b>	City <b>N. Charleston</b>	State <b>SC</b>	Zip Code <b></b>
Purchase Order #	Proj. Name / No.	Katahdin Quote #	

Bill (if different than above) Address

Sampler (Print / Sign)

Copies To:

## LAB USE ONLY

WORK ORDER #: **WP3703**  
KATAHDIN PROJECT MANAGER

REMARKS:

SHIPPING INFO: ☐ FED EX ☐ UPS ☐ CLIENT

AIRBILL NO:

TEMP°C ☐ TEMP BLANK ☐ INTACT ☐ NOT INTACT

## ANALYSIS AND CONTAINER TYPE PRESERVATIVES

Filt. OYON Filt. OYON Filt. OYON Filt. OYON Filt. OYON Filt. OYON Filt. OYON Filt. OYON Filt. OYON Filt. OYON

*DBP, MTBE, EDB, naph PAH*

*	Sample Description	Date / Time coll'd	Matrix	No. of Cntrs.															
	26GLM0801	8/21/99/1513	aq	5	3	2													
	26GLM10D01M	8/21/99/1240	aq	5	3	2													
	26GLM10D01	8/21/99/1240	aq	5	3	2													
	26GLM0401	8/21/99/0945	aq	5	3	2													
	26GLM0601	8/21/99/1005	aq	5	3	2													
	26GLM0501	8/21/99/0945	aq	5	3	2													
	26GLM0701	8/21/99/1155	aq	5	3	2													
	26GLM0701D	8/21/99/	aq	5	3	2													
	13GLM0601	8/21/99/1140	aq	5	3	2													
	32GLM0601	8/21/99/1552	aq	5	3	2													
	21GLM0301	8/22/99/1152	aq	5	3	2													
	21GLM0201	8/22/99/0955	aq	5	3	2													
	21GLM0201D	8/22/99/	aq	5	3	2													
	21GLM07D01	8/22/99/1430	aq	5	3	2													
	21GLM0801	8/22/99/1500	aq	5	3	2													
	24SLB070405	8/23/99/0915	soil	5	4	1													4 ppm

COMMENTS

Relinquished By: (Signature) <i>E. J. Haim</i>	Date / Time <i>8/24/99 1830</i>	Received By: (Signature) <i>813402681727</i>	Relinquished By: (Signature) <i>8-24-99</i>	Date / Time <i>0820</i>	Received By: (Signature) <i>[Signature]</i>
Relinquished By: (Signature)	Date / Time	Received By: (Signature)	Relinquished By: (Signature)	Date / Time	Received By: (Signature)



340 County R.  
P.O. Box 720  
Westbrook, ME 04098  
Tel: (207) 874-2400  
Fax: (207) 775-4029

# CHAIN of CUSTODY

PLEASE PRINT IN PEN

Page 2 of 2

Client <u>Ietra Tech NUS</u>	Contact <u>Bryn Horze</u>	Phone # <u>(603) 554-4925</u>	Fax # <u></u>
Address <u>NH-21 Ave. H</u>	City <u>N. Charleston</u>	State <u>SC</u>	Zip Code <u></u>

Purchase Order #	Proj. Name / No.	Katahdin Quote #
------------------	------------------	------------------

Bill (if different than above)	Address
--------------------------------	---------

Sampler (Print / Sign)	Copies To:
------------------------	------------

LAB USE ONLY	WORK ORDER #: <u>WP3703</u>	ANALYSIS AND CONTAINER TYPE PRESERVATIVES
KATAHDIN PROJECT MANAGER		

REMARKS:

SHIPPING INFO: ☐ FED EX ☐ UPS ☐ CLIENT

AIRBILL NO:

TEMP °C ☐ TEMP BLANK ☐ INTACT ☐ NOT INTACT

* Sample Description	Date / Time coll'd	Matrix	No. of Cntrs.	Filt. OYON	Filt. OYON	Filt. OYON	Filt. OYON	Filt. OYON	Filt. OYON	Filt. OYON	Filt. OYON	Filt. OYON	Filt. OYON	Filt. OYON
* 24SLB020203	8/23/99/1045	soil	5	4	1	1								
* 24SLB040304	8/23/99/0950	soil	6	4	1	1								
* 24SLB040304D	8/23/99	soil	5	4	1	1								
26GLM09001	8/23/99/1045	aq	5	3	2									
26GLM0301	8/23/99/1515	aq	5	3	2									
26GLM0201	8/23/99/1520	aq	5	3	2									
30GLM0101	8/23/99/1010	aq	9	3	2				3	1				
30GLM0301	8/23/99/1610	aq	5	3	2									
30GLM0501	8/23/99/1225	aq	9	3	2				3	1				
30GLM0701	8/23/99/1515	aq	5	3	2									
42SLP200304	8/23/99/1400	soil	5	4	1									
42SLP210304	8/23/99/1415	soil	5	4	1									
26TLO0101	8/23/99/	aq	2	2										
/	/													
/	/													
/	/													

COMMENTS  
\* Do TAL metals analysis from PATT jar.

Relinquished By: (Signature)	Date / Time 8-24-99 0850	Received By: (Signature)	Relinquished By: (Signature)	Date / Time	Received By: (Signature)
Relinquished By: (Signature)	Date / Time	Received By: (Signature)	Relinquished By: (Signature)	Date / Time	Received By: (Signature)

KATAHDIN ANALYTICAL SERVICES, INCORPORATED  
New England-ME Laboratory (207) 874-2400  
CONFIRMATION

Page 1

ORDER NO WP-3703

Project Manager: Andrea J. Colby

REPORT TO: PAUL CALLIGAN  
Tetra Tech NUS  
1401 Oven Park Dr., Suite 102  
Tallahassee, FL 32308

ORDER DATE: 08/24/99

PHONE: 850/385-9890

FAX: 850/385-986

DUE: 23 SEP

FAC.ID: CNC CHARLESTON

INVOICE: ACCOUNTS PAYABLE  
TETRA TECH NUS, INC.  
FOSTER PLAZA 7, 661 ANDERSEN DR.  
PITTSBURGH, PA 15220

PHONE: 412/921-7090

PO: N7912-P99264

PROJECT: CTO #68

SAMPLED BY: CLIENT

DELIVERED BY: FEDEX

DISPOSE: AFTER 23 OCT

ITEM	LOG NUMBER	SAMPLE DESCRIPTION	SAMPLED DATE/TIME	RECEIVED	MATRIX
1	WP3703-1	26GLM0801	21 AUG 1513	24 AUG	AQ
	WP3703-2	26GLM10D01	21 AUG 1240		
	WP3703-3	26GLM0401	21 AUG 0945		
	WP3703-4	26GLM0601	21 AUG 1005		
	WP3703-5	26GLM0501	21 AUG 0945		
	WP3703-6	26GLM0701	21 AUG 1155		
	WP3703-7	26GLM0701D	21 AUG		
	WP3703-8	13GLM0601	21 AUG 1140		
	WP3703-9	32GLM0601	21 AUG 1557		
	WP3703-10	21GLM0301	22 AUG 1152		
	WP3703-11	21GLM0201	22 AUG 0955		
	WP3703-12	21GLM0201D	22 AUG		
	WP3703-13	21GLM07D01	22 AUG 1430		
	WP3703-14	21GLM0801	22 AUG 1500		
	WP3703-15	26GLM09D01	23 AUG 1645		
	WP3703-16	26GLM0301	23 AUG 1515		
	WP3703-17	26GLM0201	23 AUG 1520		
	WP3703-18	30GLM0301	22 AUG 1610		
	WP3703-19	30GLM0701	22 AUG 1515		

DETERMINATION	METHOD	QTY	PRICE	AMOUNT
Volatile Organics by 8260B	SW8260	19	75.00	1425.00
Polynuclear Aromatic Hydrocarbons	EPA 8270	19	125.00	2375.00
TOTALS		19	200.00	3800.00

LABORATORY ORDER CONTINUED ON PAGE 2

0000146  
M. Attila

KATAHDIN ANALYTICAL SERVICES, INCORPORATED  
New England-ME Laboratory (207) 874-2400  
CONFIRMATION

Page 2

ORDER NO WP-3703

Project Manager: Andrea J. Colby

REPORT TO: PAUL CALLIGAN  
Tetra Tech NUS  
1401 Oven Park Dr., Suite 102  
Tallahassee, FL 32308

ORDER DATE: 08/24/99

PHONE: 850/385-9899

FAX: 850/385-9860

DUE: 23 SEP

FAC.ID: CNC CHARLESTON

INVOICE: ACCOUNTS PAYABLE  
TETRA TECH NUS, INC.  
FOSTER PLAZA 7, 661 ANDERSEN DR.  
PITTSBURGH, PA 15220

PHONE: 412/921-7090

PO: N7912-P99264

PROJECT: CTO #68

SAMPLED BY: CLIENT

DELIVERED BY: FEDEX

DISPOSE: AFTER 23 OCT

	LOG NUMBER	SAMPLE DESCRIPTION	SAMPLED DATE/TIME	RECEIVED	MATRIX
2	WP3703-20	30GLM0101	22 AUG 1210	24 AUG	AQ
	WP3703-21	30GLM0501	22 AUG 1225		

DETERMINATION	METHOD	QTY	PRICE	AMOUNT
Volatile Organics by 8260B	SW8260	2	75.00	150.00
Polynuclear Aromatic Hydrocarbons	EPA 8270	2	125.00	250.00
Nitrate as N	353.2	2	30.00	60.00
Sulfate (as SO4)	E300	2	0.00	0.00
Methane Subcontract		2	95.00	190.00

TOTALS		2	325.00	650.00
--------	--	---	--------	--------

	LOG NUMBER	SAMPLE DESCRIPTION	SAMPLED DATE/TIME	RECEIVED	MATRIX
	WP3703-22	26TL00101	23 AUG	24 AUG	AQ

DETERMINATION	METHOD	QTY	PRICE	AMOUNT
Volatile Organics by 8260B	SW8260	1	75.00	75.00

	LOG NUMBER	SAMPLE DESCRIPTION	SAMPLED DATE/TIME	RECEIVED	MATRIX
4	WP3703-23	24SLB070405	23 AUG 0915	24 AUG	SL

DETERMINATION	METHOD	QTY	PRICE	AMOUNT
Solids-Total Residue (TS)	CLP/CIP SO	1	0.00	0.00
Polynuclear Aromatic Hydrocarbons	EPA 8270	1	135.00	135.00
Volatile Organics by 8260B	SW8260	1	85.00	85.00

TOTALS		1	220.00	220.00
--------	--	---	--------	--------

LABORATORY ORDER CONTINUED ON PAGE 3

0000147 MSB  
0000147 10/1/99  
207 874-2400

KATAHDIN ANALYTICAL SERVICES, INCORPORATED  
New England-ME Laboratory (207) 874-2400  
CONFIRMATION

Page 3

ORDER NO WP-3703

Project Manager: Andrea J. Colby

REPORT TO: PAUL CALLIGAN  
Tetra Tech NUS  
1401 Oven Park Dr., Suite 102  
Tallahassee, FL 32308

ORDER DATE: 08/24/99

PHONE: 850/385-98

FAX: 850/385-98

DUE: 23 SEP

FAC.ID: CNC CHARLESTON

INVOICE: ACCOUNTS PAYABLE  
TETRA TECH NUS, INC.  
FOSTER PLAZA 7, 661 ANDERSEN DR.  
PITTSBURGH, PA 15220

PHONE: 412/921-7090

PO: N7912-P99264

PROJECT: CTO #68

SAMPLED BY: CLIENT

DELIVERED BY: FEDEX

DISPOSE: AFTER 23 OCT

	LOG NUMBER	SAMPLE DESCRIPTION	SAMPLED DATE/TIME	RECEIVED	MATRIX
5	WP3703-24	24SLB040304	23 AUG 0950	24 AUG	SL

DETERMINATION	METHOD	QTY	PRICE	AMOUNT
Volatile Organics by 8260B	SW8260	1	85.00	85.00
Polynuclear Aromatic Hydrocarbons	EPA 8270	1	135.00	135.00
Target Analyte List Metals, Total		1	100.00	100.00
Solids-Total Residue (TS)	CLP/CIP SO	1	0.00	0.00
Grain Size Subcontract		1	110.00	110.00
Total Combustible Organics	ASTM D2974	1	30.00	30.00
TOC Subcontract		1	60.00	60.00
TPH Subcontract		1	75.00	75.00

TOTALS		1	595.00	595.00
--------	--	---	--------	--------

	LOG NUMBER	SAMPLE DESCRIPTION	SAMPLED DATE/TIME	RECEIVED	MATRIX
6	WP3703-25	24SLB020203	23 AUG 1045	24 AUG	SL

DETERMINATION	METHOD	QTY	PRICE	AMOUNT
Volatile Organics by 8260B	SW8260	1	85.00	85.00
Solids-Total Residue (TS)	CLP/CIP SO	1	0.00	0.00
Polynuclear Aromatic Hydrocarbons	EPA 8270	1	135.00	135.00
Target Analyte List Metals, Total		1	100.00	100.00

TOTALS		1	320.00	320.00
--------	--	---	--------	--------

LABORATORY ORDER CONTINUED ON PAGE 4

1550 0000148  
10/1/99 0000150  
21. 01/11/20



KATAHDIN ANALYTICAL SERVICES, INCORPORATED  
New England-ME Laboratory (207) 874-2400  
CONFIRMATION

Page 4

ORDER NO WP-3703

Project Manager: Andrea J. Colby

REPORT TO: PAUL CALLIGAN  
Tetra Tech NUS  
1401 Oven Park Dr., Suite 102  
Tallahassee, FL 32308

ORDER DATE: 08/24/99

PHONE: 850/385-9899

FAX: 850/385-9860

DUE: 23 SEP

FAC.ID: CNC CHARLESTON

INVOICE: ACCOUNTS PAYABLE  
TETRA TECH NUS, INC.  
FOSTER PLAZA 7, 661 ANDERSEN DR.  
PITTSBURGH, PA 15220

PHONE: 412/921-7090

PO: N7912-P99264

PROJECT: CTO #68

SAMPLED BY: CLIENT

DELIVERED BY: FEDEX

DISPOSE: AFTER 23 OCT

	LOG NUMBER	SAMPLE DESCRIPTION	SAMPLED DATE/TIME	RECEIVED	MATRIX
7	WP3703-27	42SLP200304	23 AUG 1400	24 AUG	SL
	WP3703-28	42SLP210304	23 AUG 1415		

DETERMINATION	METHOD	QTY	PRICE	AMOUNT
Volatile Organics by 8260B	SW8260	2	85.00	170.00
Polynuclear Aromatic Hydrocarbons	EPA 8270	2	135.00	270.00
Solids-Total Residue (TS)	CLP/CIP SO	2	0.00	0.00
TOTALS		2	220.00	440.00

	LOG NUMBER	SAMPLE DESCRIPTION	SAMPLED DATE/TIME	RECEIVED	MATRIX
9	WP3703-26	24SLB040304D	23 AUG	24 AUG	SL

DETERMINATION	METHOD	QTY	PRICE	AMOUNT
Volatile Organics by 8260B	SW8260	1	85.00	85.00
Polynuclear Aromatic Hydrocarbons	EPA 8270	1	135.00	135.00
Solids-Total Residue (TS)	CLP/CIP SO	1	0.00	0.00
Total Combustible Organics	ASTM D2974	1	30.00	30.00
TOC Subcontract		1	60.00	60.00
Target Analyte List Metals, Total		1	100.00	100.00
TPH Subcontract		1	75.00	75.00
TOTALS		1	485.00	485.00

LABORATORY ORDER CONTINUED ON PAGE 5

0000149  
m. alcala

KATAHDIN ANALYTICAL SERVICES, INCORPORATED  
New England-ME Laboratory (207) 874-2400  
CONFIRMATION

Page 5

ORDER NO WP-3703

Project Manager: Andrea J. Colby

REPORT TO: PAUL CALLIGAN  
Tetra Tech NUS  
1401 Oven Park Dr., Suite 102  
Tallahassee, FL 32308

ORDER DATE: 08/24/99

PHONE: 850/385-9866

FAX: 850/385-9866

DUE: 23 SEP

FAC.ID: CNC CHARLESTON

INVOICE: ACCOUNTS PAYABLE  
TETRA TECH NUS, INC.  
FOSTER PLAZA 7, 661 ANDERSEN DR.  
PITTSBURGH, PA 15220

PHONE: 412/921-7090

PO: N7912-P99264

PROJECT: CTO #68

SAMPLED BY: CLIENT

DELIVERED BY: FEDEX

DISPOSE: AFTER 23 OCT

ORDER NOTE: QC-II+ W/NARRATIVE  
DD(KAS007QC-DB3)  
CNC CHARLESTON  
NFESC

REPORT COPY: MS. LEE LECK  
TETRA TECH NUS  
FOSTER PLAZA 7  
661 ANDERSEN DR.  
PITTSBURGH, PA 15220  
REPORT AND DISK

INVOICE: With Report

TOTAL ORDER AMOUNT \$6,585.00

This is NOT an Invoice

AJC/BKR/WEST.AJC(dw)

09-21Please contact KATAHDIN ANALYTICAL SERVICES promptly if you have any questions

0000150  
A. J. Silva



# KATAHDIN ANALYTICAL SERVICES

## Summary of Report Notes

Report Note	Note Text
#	'#' flag denotes surrogate compound recovery is out of criteria.
E	'E' flag indicates an estimated value. The analyte was detected in the sample at a concentration greater than the standard calibration range.
J	'J' flag denotes an estimated value less than the Laboratory's Practical Quantitation Level.
O-2	Sample dilution required for quantitation of one or more target analytes; therefore, standard laboratory Practical Quantitation Level (PQL) could not be achieved.



# KATAHDIN ANALYTICAL SERVICES

## REPORT OF ANALYTICAL RESULTS

Client: PAUL CALLIGAN  
Tetra Tech NUS  
1401 Oven Park Dr.  
Suite 102  
Tallahassee, FL 32308  
Proj. ID: CNC CHARLESTON

Lab Number: WP3703-8  
SDG: WP3703  
Report Date: 9/24/99  
PO No.: N7912-P99264  
Project: CTO #68  
% Solids: N/A  
Method: EPA 8270  
Date Analyzed: 9/7/99

Sample Description	Matrix	Sampled Date	Rec'd Date	Ext. Date	Ext'd By	Ext. Method	Analyst
13GLM0601	AQ	8/21/99	8/24/99	8/25/99	DS	EPA 3510	KRT

Compound	Result	Units	DF	Sample PQL	Method PQL
NAPHTHALENE	<10	ug/L	1.0	10	10
2-METHYLNAPHTHALENE	<10	ug/L	1.0	10	10
ACENAPHTHYLENE	<10	ug/L	1.0	10	10
ACENAPHTHENE	<10	ug/L	1.0	10	10
FLUORENE	<10	ug/L	1.0	10	10
PHENANTHRENE	<10	ug/L	1.0	10	10
ANTHRACENE	<10	ug/L	1.0	10	10
FLUORANTHENE	<10	ug/L	1.0	10	10
PYRENE	<10	ug/L	1.0	10	10
BENZO[A]ANTHRACENE	<10	ug/L	1.0	10	10
CHRYSENE	<10	ug/L	1.0	10	10
BENZO[B]FLUORANTHENE	<10	ug/L	1.0	10	10
BENZO[K]FLUORANTHENE	<10	ug/L	1.0	10	10
BENZO[A]PYRENE	<10	ug/L	1.0	10	10
INDENO[1,2,3-CD]PYRENE	<10	ug/L	1.0	10	10
DIBENZ[A,H]ANTHRACENE	<10	ug/L	1.0	10	10
BENZO[G,H,I]PERYLENE	<10	ug/L	1.0	10	10
NITROBENZENE-D5	76	%	1.0		
2-FLUOROBIPHENYL	76	%	1.0		
TERPHENYL-D14	90	%	1.0		

Report Notes:



# KATAHDIN ANALYTICAL SERVICES

## REPORT OF ANALYTICAL RESULTS

**Client:** PAUL CALLIGAN  
Tetra Tech NUS  
1401 Owen Park Dr.  
Suite 102  
Tallahassee, FL 32308  
**Proj. ID:** CNC CHARLESTON

**Lab Number:** WP3703-8  
**SDG:** WP3703  
**Report Date:** 9/24/99  
**PO No. :** N7912-P99264  
**Project:** CTO #68  
**% Solids:** N/A  
**Method:** SW8260  
**Date Analyzed:** 8/25/99

Sample Description	Matrix	Sampled Date	Rec'd Date	Ext. Date	Ext'd By	Ext. Method	Analyst
13GLM0601	AQ	8/21/99	8/24/99	8/25/99	KMC	5030	KMC

Compound	Result	Units	DF	Sample PQL	Method PQL
BENZENE	<5	ug/L	1.0	5	5
TOLUENE	<5	ug/L	1.0	5	5
1,2-DIBROMOETHANE	<5	ug/L	1.0	5	5
ETHYLBENZENE	<5	ug/L	1.0	5	5
NAPHTHALENE	<5	ug/L	1.0	5	5
MTBE	<5	ug/L	1.0	5	5
TOTAL XYLENES	<5	ug/L	1.0	5	5
DIBROMOFLUOROMETHANE	104	%	1.0		
1,2-DICHLOROETHANE-D4	100	%	1.0		
TOLUENE-D8	91	%	1.0		
P-BROMOFLUOROBENZENE	90	%	1.0		

**Report Notes:**

**4B**  
**SEMIVOLATILE ORGANICS METHOD BLANK SUMMARY**

EPA SAMPLE NO.

**SBLK1;082599**

Lab Name: Katahdin Analytical Services

SDG No.: WP3703

Lab File ID: Z1964

Lab Sample ID: SBLK1;082599

Instrument ID: 5972-Z

Date Extracted: 8/25/99

GC Column: RTX-5 ID: 0.25 (mm)

Date Analyzed: 09/07/99

Matrix: (soil/water) WATER

Time Analyzed: 14:09

Level: (low/med) LOW

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES, LCS'S, MS AND MSD'S

Client Sample ID	Lab Sample ID	Lab Data File	Date Injected	Time Injected
LCS;082599	LCS;082599	Z1965	9/7/99	2:58:00 PM
26GLM0801	WP3703-1	Z1966	9/7/99	3:47:00 PM
26GLM10D01	WP3703-2	Z1967	9/7/99	4:36:00 PM
26GLM10D01MS	WP3703-2MS	Z1968	9/7/99	5:24:00 PM
26GLM10D01MSD	WP3703-2MSD	Z1969	9/7/99	6:12:00 PM
26GLM0401	WP3703-3	Z1970	9/7/99	7:00:00 PM
26GLM0601	WP3703-4	Z1971	9/7/99	7:51:00 PM
26GLM0501	WP3703-5	Z1972	9/7/99	8:39:00 PM
26GLM0701	WP3703-6	Z1973	9/7/99	9:29:00 PM
26GLM0701D	WP3703-7	Z1974	9/7/99	10:17:00 PM
13GLM0601	WP3703-8	Z1975	9/7/99	11:05:00 PM
32GLM0601	WP3703-9	Z1976	9/7/99	11:55:00 PM
21GLM0301	WP3703-10	Z1977	9/8/99	12:43:00 AM
21GLM0201D	WP3703-12	Z1990	9/8/99	9:34:00 AM
21GLM07D01	WP3703-13	Z1991	9/8/99	10:21:00 AM
26GLM09D01	WP3703-15	Z1992	9/8/99	11:10:00 AM
26GLM0301	WP3703-16	Z1993	9/8/99	11:59:00 AM
30GLM0301	WP3703-18	Z2010	9/9/99	2:01:00 PM
21GLM07D01	WP3703-13RA	Z2011	9/9/99	2:48:00 PM
30GLM0701	WP3703-19	Z2015	9/9/99	5:59:00 PM
30GLM0101	WP3703-20	Z2016	9/9/99	6:48:00 PM
30GLM0501	WP3703-21	Z2017	9/9/99	7:35:00 PM
21GLM0201	WP3703-11	Z2030	9/10/99	2:03:00 PM
30GLM0101	WP3703-20DL	Z2040	9/13/99	10:29:00 AM



# KATAHDIN ANALYTICAL SERVICES

## REPORT OF ANALYTICAL RESULTS

**Client:** PAUL CALLIGAN  
Tetra Tech NUS  
1401 Oven Park Dr.  
Suite 102  
Tallahassee, FL 32308  
**Proj. ID:** CNC CHARLESTON

**Lab Number:** SBLK1;082599  
**SDG:** WP3703  
**Report Date:** 9/24/99  
**PO No. :** N7912-P99264  
**Project:** CTO #68  
**% Solids:** N/A  
**Method:** EPA 8270  
**Date Analyzed:** 9/7/99

Sample Description	Matrix	Sampled Date	Rec'd Date	Ext. Date	Ext'd By	Ext. Method	Analyst
SBLK1;082599	AQ	-	-	8/25/99	DS	EPA 3510	KRT

Compound	Result	Units	DF	Sample PQL	Method PQL
NAPHTHALENE	<10	ug/L	1.0	10	10
2-METHYLNAPHTHALENE	<10	ug/L	1.0	10	10
ACENAPHTHYLENE	<10	ug/L	1.0	10	10
ACENAPHTHENE	<10	ug/L	1.0	10	10
FLUORENE	<10	ug/L	1.0	10	10
PHENANTHRENE	<10	ug/L	1.0	10	10
ANTHRACENE	<10	ug/L	1.0	10	10
FLUORANTHENE	<10	ug/L	1.0	10	10
PYRENE	<10	ug/L	1.0	10	10
BENZO[A]ANTHRACENE	<10	ug/L	1.0	10	10
CHRYSENE	<10	ug/L	1.0	10	10
BENZO[B]FLUORANTHENE	<10	ug/L	1.0	10	10
BENZO[K]FLUORANTHENE	<10	ug/L	1.0	10	10
BENZO[A]PYRENE	<10	ug/L	1.0	10	10
INDENO[1,2,3-CD]PYRENE	<10	ug/L	1.0	10	10
DIBENZ[A,H]ANTHRACENE	<10	ug/L	1.0	10	10
BENZO[G,H,I]PERYLENE	<10	ug/L	1.0	10	10
NITROBENZENE-D5	68	%	1.0		
2-FLUOROBIPHENYL	69	%	1.0		
TERPHENYL-D14	86	%	1.0		

**Report Notes:**

# Katahdin Analytical Services

## 8270 LCS Recovery Sheet

Lab File: Z1909

Sample ID: LCS1;082599

Date Run: 8/31/99

Analyst: KRT

Time Injected 5:19:00 PM

Matrix: SL

Compound Name	Spike Amt (ug/Kg)	Result (ug/Kg)	Rec (%)	Limits (%)
2-METHYLNAPHTHALENE	1667	1530	92	60-140
ACENAPHTHENE	1667	1630	98	60-140
ACENAPHTHYLENE	1667	1600	96	60-140
ANTHRACENE	1667	1710	102	60-140
BENZO[A]ANTHRACENE	1667	1780	107	60-140
BENZO[A]PYRENE	1667	1750	105	60-140
BENZO[B]FLUORANTHENE	1667	1700	102	60-140
BENZO[G,H,I]PERYLENE	1667	1660	100	60-140
BENZO[K]FLUORANTHENE	1667	1930	116	60-140
CHRYSENE	1667	1930	116	60-140
DIBENZ[A,H]ANTHRACENE	1667	1800	108	60-140
FLUORANTHENE	1667	1790	107	60-140
FLUORENE	1667	1700	102	60-140
INDENO[1,2,3-CD]PYRENE	1667	1820	109	60-140
NAPHTHALENE	1667	1560	94	60-140
PHENANTHRENE	1667	1800	108	60-140
PYRENE	1667	1770	106	60-140

\* Out of Limits

1



## Katahdin Analytical Services

## MS/MSD Report

Sample	File Name	Date Acquired	Time inj	Analyst	Matrix	Method
WP3703-2	Z1967	9/7/99	4:36:00 PM	KRT	AQ	8270_99
WP3703-2MS	Z1968	9/7/99	5:24:00 PM	KRT	AQ	8270_99
WP3703-2MSD	Z1969	9/7/99	6:12:00 PM	KRT	AQ	8270_99

Compound Name	Native (ug/L)	MS Spk Amount (ug/L)	MSD Spk Amount (ug/L)	MS Result (ug/L)	MSD Result (ug/L)	MS REC (%)	MSD REC (%)	Recovery Limits (%)	RPD (%)	RPD Limit (%)
BENZO[G,H,I]PERYLENE	0	49	49	56.6	56.0	115	114	60-140	1.1	30
2-METHYLNAPHTHALENE	0	49	49	42.9	42.2	87	86	60-140	1.6	30
NAPHTHALENE	0	49	49	40.3	41.4	82	84	60-140	2.7	30
INDENO[1,2,3-CD]PYRENE	0	49	49	59.8	59.1	122	120	60-140	1.2	30
FLUORENE	0	49	49	47.2	43.1	96	88	60-140	9.1	30
FLUORANTHENE	0	49	49	46.7	43.3	95	88	60-140	7.6	30
DIBENZ[A,H]ANTHRACENE	0	49	49	52.8	52.3	108	107	60-140	0.95	30
PHENANTHRENE	0	49	49	47.8	46.9	97	96	60-140	1.9	30
BENZO[K]FLUORANTHENE	0	49	49	52.8	51.8	108	106	60-140	1.9	30
PYRENE	0	49	49	53.8	54.8	110	112	60-140	1.8	30
BENZO[B]FLUORANTHENE	0	49	49	40.7	40.0	83	82	60-140	1.7	30
BENZO[A]PYRENE	0	49	49	46.5	45.8	95	93	60-140	1.5	30
BENZO[A]ANTHRACENE	0	49	49	47.0	46.6	96	95	60-140	0.85	30
ANTHRACENE	0	49	49	46.6	45.1	95	92	60-140	3.3	30
ACENAPHTHYLENE	0	49	49	45.9	42.2	94	86	60-140	8.4	30
NAPHTHENE	0	49	49	45.8	42.3	94	86	60-140	7.9	30
CHRYSENE	0	49	49	53.2	52.6	108	107	60-140	1.1	30

$$RPD = [(ms\ res - msd\ res) / (ms\ res + msd\ res) / 2] * 100$$

\* Out of Limits

/

0000103

4A  
VOLATILE ORGANICS METHOD BLANK SUMMARY

EPA SAMPLE NO.

**VBCLKF25A**

Lab Name: Katahdin Analytical Services

SDG No.: WP3703

Lab File ID: F1601

Lab Sample ID: VBCLKF25A

Date Analyzed: 08/25/99

Time Analyzed: 9:28

GC Column: RTX-624 ID: 0.18 (mm)

Heated Purge: (Y/N) N

Instrument ID: 5972-F

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES, LCS'S, MS AND MSD'S

Client Sample ID	Lab Sample ID	Lab Data File	Date Injected	Time Injected
LCSF25A	LCSF25A	F1600	8/25/99	8:35:00 AM
26GLM10D01MS	WP3703-2MS	F1605	8/25/99	12:11:00 PM
26GLM10D01MSD	WP3703-2MSD	F1606	8/25/99	12:47:00 PM
26GLM0801	WP3703-1	F1608	8/25/99	2:00:00 PM
26GLM10D01	WP3703-2	F1609	8/25/99	2:36:00 PM
26GLM0401	WP3703-3	F1610	8/25/99	3:13:00 PM
26GLM0601	WP3703-4	F1611	8/25/99	3:49:00 PM
26GLM0501	WP3703-5	F1612	8/25/99	4:26:00 PM
26GLM0701	WP3703-6	F1613	8/25/99	5:02:00 PM
26GLM0701D	WP3703-7	F1814	8/25/99	5:38:00 PM
13GLM0601	WP3703-8	F1615	8/25/99	6:15:00 PM
32GLM0601	WP3703-9	F1616	8/25/99	6:51:00 PM



# KATAHDIN ANALYTICAL SERVICES

## REPORT OF ANALYTICAL RESULTS

**Client:** PAUL CALLIGAN  
Tetra Tech NUS  
1401 Owen Park Dr.  
Suite 102  
Tallahassee, FL 32308

**Proj. ID:** CNC CHARLESTON

**Lab Number:** VBLKF25A  
**SDG:** WP3703  
**Report Date:** 9/24/99  
**PO No. :** N7912-P99264  
**Project:** CTO #68  
**% Solids:** N/A  
**Method:** SW8260  
**Date Analyzed:** 8/25/99

Sample Description	Matrix	Sampled Date	Rec'd Date	Ext. Date	Ext'd By	Ext. Method	Analyst
VBLKF25A	AQ	-	-	8/25/99	KMC	5030	KMC

Compound	Result	Units	DF	Sample PQL	Method PQL
BENZENE	<5	ug/L	1.0	5	5
TOLUENE	<5	ug/L	1.0	5	5
1,2-DIBROMOETHANE	<5	ug/L	1.0	5	5
ETHYLBENZENE	<5	ug/L	1.0	5	5
NAPHTHALENE	<5	ug/L	1.0	5	5
MTBE	<5	ug/L	1.0	5	5
TOTAL XYLENES	<5	ug/L	1.0	5	5
DIBROMOFLUOROMETHANE	104	%	1.0		
1,2-DICHLOROETHANE-D4	100	%	1.0		
TOLUENE-D8	91	%	1.0		
P-BROMOFLUOROBENZENE	91	%	1.0		

**Report Notes:**

**Katahdin Analytical Services**  
**8260 LCS Recovery Sheet**

**Lab File: F1600**

**Sample ID: LCSF25A**

**Date Run: 8/25/99**

**Analyst: KMC**

**Time Injected 8:35:00 AM**

**Matrix: AQ**

Compound Name	Spike Amt (ug/L)	Result (ug/L)	Rec (%)	Limits (%)
1,2-DIBROMOETHANE	50	54.0	108	60-140
BENZENE	50	48.0	96	60-140
ETHYLBENZENE	50	49.7	99	60-140
MTBE	50	51.9	104	60-140
NAPHTHALENE	50	50.4	101	60-140
TOLUENE	50	48.3	96	60-140
TOTAL XYLENES	150	144	96	60-140

\* Out of Limits

1

0000118

# Katahdin Analytical Services

## MS/MSD Report

ample	File Name	Date Acquired	Time inj	Analyst	Matrix	Method
WP3703-2	F1609	8/25/99	2:36:00 PM	KMC	AQ	8260_99
WP3703-2MS	F1605	8/25/99	12:11:00 PM	KMC	AQ	8260_99
WP3703-2MSD	F1606	8/25/99	12:47:00 PM	KMC	AQ	8260_99

Compound Name	Native (ug/L)	MS Spk Amount (ug/L)	MSD Spk Amount (ug/L)	MS Result (ug/L)	MSD Result (ug/L)	MS REC (%)	MSD REC (%)	Recovery Limits (%)	RPD (%)	RPD Limit (%)
TOTAL XYLENES	0	150	150	122	118	81	79	60-140	3.3	20
TOLUENE	0	50	50	41.8	39.5	84	79	60-140	5.6	20
NAPHTHALENE	0	50	50	47.4	45.2	95	90	60-140	4.8	20
MTBE	0	50	50	49.8	47.1	100	94	60-140	5.6	20
ETHYLBENZENE	0	50	50	42.0	41.0	84	82	60-140	2.4	20
BENZENE	0	50	50	42.5	39.9	85	80	60-140	6.3	20
1,2-DIBROMOETHANE	0	50	50	50.4	47.6	101	95	60-140	5.7	20

$$RPD = [(ms\ res - msd\ res) / (ms\ res + msd\ res) / 2] * 100$$

\* Out of Limits



**SDG NARRATIVE  
KATAHDIN ANALYTICAL SERVICES  
TETRA TECH NUS  
CASE CNC CHARLESTON**

**Sample Receipt**

The following samples were received on June 15, 1999 and were logged in under Katahdin Analytical Services work order number WP2899 for a hardcopy due date of July 15, 1999.

<u>KATAHDIN</u> <u>Sample No.</u>	<u>TTNUS</u> <u>Sample Identification</u>	<u>GEL</u> <u>Sample No.</u>
WP2899-1	13SLB060405	
WP2899-2	13SLB040506	
WP2899-3	13SLB020607	
WP2899-4	13SLB010607	9906485-01
WP2899-5	13SLB010607D	9906485-02
WP2899-6	13TL00101	

The samples were logged in for the analyses specified on the chain of custody form. All problems encountered and resolved during sample receipt have been documented on the applicable chain of custody forms.

Sample analyses have been performed by the methods as noted herein.

**Volatile Organic Analysis**

One aqueous and five soil samples were received by the Katahdin Analytical Services, Inc. GC/MS laboratory on June 15, 1999 and were specified to be analyzed by USEPA method 8260B for the analytes benzene, toluene, ethylbenzene, xylenes, MTBE, naphthalene, and EDB.

Analyses for this workorder were performed on the 5972-S and 5972-Z instruments. A VSTD050 (50 ppb standard) was used for the continuing calibration standard. Internal standard and surrogate compounds were also spiked at 50 ug/l.

Batch QC (VBLK, and LCS) was performed in each twelve-hour window. Results are included in this data package. The LCS QC samples were spiked with the entire list of compounds quantitated for at 50 ppb. No matrix spike/matrix spike duplicate was performed on any sample in this workorder.

Method 8000B, section 7.5.1.2.1 (Revision 2, 12/96) states, "in those instances where the RSD for one or more analytes exceeds 20%, the initial calibration curve may still be acceptable if the mean of the RSD values for all analytes in the calibration is less than or equal to 20%." Method 8260B narrows this 20% maximum to 15%.



Two initial calibration curves are reported in this workorder. Both calibrations had several analytes exceeding the maximum allowable 15% RSD. Since the average %RSD values were 13.3% and 11.2%, respectively, the curves were acceptable.

Sample WP2899-1, 2, 3, and 5 required reanalysis due to surrogate or internal standard recovery deviations in the initial analysis. In all instances, similar results were obtained, confirming matrix interference. Both sets of data for each sample are included in this data package.

Several manual integrations were performed due to split peaks; all have been flagged with a "M" (software-generated) on the pertinent quantitation reports. All "M" flags have been dated and initialed by the analyst performing the integration. In addition, all "M" flags have been reviewed and approved by the GC/MS supervisor. Copies of each manual integration are included in the pertinent quantitation reports.

No other protocol deviations were noted by the volatile organics staff.

#### **Semivolatile Organic Analysis**

Five soil/sediment samples were received by Katahdin Analytical Services laboratory on June 15, 1999 for analysis in accordance with 8270C for the PAH list of analytes.

Extraction of the samples occurred following USEPA method 3550 on June 18, 1999. A laboratory control spike consisting of all PAH analytes spiked into organic free sand, was extracted in the batch, along with a site-specific MS/MSD pair on sample WP2899-2.

The initial calibration curve analyzed in this SDG had some of the target analyte %RSD values exceeding 15 %.

Method 8000B, section 7.5.1.2.1 (Revision 2, 12/96) states, "in those instances where the RSD for one or more analytes exceeds 20%, the initial calibration curve may still be acceptable if the mean of the RSD values for all analytes in the calibration is less than or equal to 20%." Section 7.3.7.1 of method 8270C (revision 3, 12/96) narrows this 20% maximum to 15%.

In the calibration curve analyzed in this SDG, the average %RSD for all analytes was 9.1%, making the curve acceptable.

Several manual integrations were performed due to split peaks; all have been flagged with a "M" by the data system. All manual integrations have been dated and initialed by the responsible analyst. Copies of each manual integration are included in the data package. All manual integrations have been reviewed and approved by the GC/MS supervisor.

No other protocol deviations were noted by the semivolatiles organics staff.

**Wet Chemistry Analysis**

For work order WP2899 the analyses for Total Combustible Organics (TCO) have been performed in accordance with the "Annual Book of ASTM Standards", 1987. Analyses for Solids-Total Residue (TS) for work order WP2899 samples have been performed in accordance with "Contract Laboratory Program Statement of Work for Inorganic Analysis".

All analyses were performed within analytical hold time. No protocol deviations were noted by the Wet Chemistry laboratory staff.

**Subcontracted Analysis**

Analyses for Total Organic Carbon, Total Petroleum Hydrocarbons and Grain size were subcontracted to outside laboratories. All sets of data are included as separate sections to the data package.

I certify that this data package is in compliance with the terms and conditions of the contract, both technically and for completeness, for other than the conditions detailed above. Release of the data contained in this hardcopy data package has been authorized by the Laboratory Manager and/or his designee, as verified by the following signature.

\_\_\_\_\_  
Authorized Signature

0000004



KATAHDIN ANALYTICAL SERVICES, INC.  
SAMPLE RECEIPT CONDITION REPORT  
Tel. (207) 874-2400  
Fax (207) 775-4029

LAB (WORK ORDER) # WB 2899

PAGE: 1 OF 1

COOLER: 1 OF 1

COC# -

SDG# -

DATE / TIME RECEIVED: 061599 1000

DELIVERED BY: FEDEX

RECEIVED BY: BKR

LIMS ENTRY BY: BKR

LIMS REVIEW BY / PM: ADC

CLIENT: Tetra Tech

PROJECT: CNC - Charleston

	YES	NO	EXCEPTIONS	COMMENTS	RESOLUTION
1. CUSTODY SEALS PRESENT / INTACT?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
2. CHAIN OF CUSTODY PRESENT IN THIS COOLER?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
3. CHAIN OF CUSTODY SIGNED BY CLIENT?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
4. CHAIN OF CUSTODY MATCHES SAMPLES?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
5. TEMPERATURE BLANKS PRESENT?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	TEMP BLANK TEMP (°C)=	
6. SAMPLES RECEIVED AT 4°C +/- 2°?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	COOLER TEMP (°C)= <u>NA</u>	
ICE / ICE PACKS PRESENT <u>Y</u> or <u>N</u> ?				(RECORD COOLER TEMP ONLY IF TEMP BLANK IS NOT PRESENT)	
7. VOLATILES FREE OF HEADSPACE?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
8. TRIP BLANK PRESENT IN THIS COOLER	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
9. PROPER SAMPLE CONTAINERS AND VOLUME?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
10. SAMPLES WITHIN HOLD TIME UPON RECEIPT?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
11. SAMPLES PROPERLY PRESERVED <sup>(1)</sup> ?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
12. CORRECTIVE ACTION REPORT FILED?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	N/A		
13. ANALYTICAL PROGRAMS (CIRCLE ONE)	COMMERCIAL	CLP	HAZWRAP	<u>NFESC</u>	ACOE
	AFCEE	OTHER (STATE OF ORIGIN):			

LOG - IN NOTES<sup>(1)</sup>:

<sup>(1)</sup> Use this report (and additional sheets if necessary) to document samples that are received broken, compromised, C-O-C discrepancies, radiation checks, residual chlorine check, recheck if required. If samples required pH adjustment, record volume and type of preservative adjustment and pH.

Client	Tetra Tech NUS	Contact	Bryn Howell	Phone #	(843) 554-4925	Fax #	( )
Address	NH-21, Ave H	City	North Charleston	State	SC	Zip Code	29405
Purchase Order #		Proj. Name / No.		Katahdin Quote #			

Bill (if different than above)	Address
--------------------------------	---------

Sampler (Print / Sign) Roger Franklin H. Hill Copies To: \_\_\_\_\_

LAB USE ONLY WORK ORDER #: WP 2899  
KATAHDIN PROJECT MANAGER

ANALYSIS AND CONTAINER TYPE PRESERVATIVESREMARKS: \_\_\_\_\_



SHIPPING INFO: ☐ FED EX ☐ UPS ☐ CLIENT

AIRBILL NO: \_\_\_\_\_

TEMP °C \_\_\_\_\_ ☐ TEMP BLANK ☐ INTACT ☐ NOT INTACT

[illegible]

COMMENTS

Relinquished By: (Signature) 	Date / Time 6/14/99 1800	Received By: (Signature) 309609650210	Relinquished By: (Signature)	Date / Time 06-15-99 1000	Received By: (Signature) 
Relinquished By: (Signature)	Date / Time	Received By: (Signature)	Relinquished By: (Signature)	Date / Time	Received By: (Signature)

**New England-ME Laboratory (207) 874-2400**  
**CONFIRMATION**

Page 1

ORDER NO WP-2899

Project Manager: Andrea J. Colby

REPORT TO: PAUL CALLIGAN  
Tetra Tech NUS  
1401 Oven Park Dr., Suite 102  
Tallahassee, FL 32308

ORDER DATE: 06/15/99

PHONE: 850/385-9800

FAX: 850/385-9800

DUE: 15 JUL

FAC.ID: CNC CHARLESTON

INVOICE: ACCOUNTS PAYABLE  
TETRA TECH NUS, INC.  
FOSTER PLAZA 7, 661 ANDERSEN DR.  
PITTSBURGH, PA 15220

PHONE: 412/921-7090

PO: N7912-P99264

PROJECT: CTO#68

SAMPLED BY: R.FRANKLIN

DELIVERED BY: FEDEX

DISPOSE: AFTER 14 AUG

ITEM	LOG NUMBER	SAMPLE DESCRIPTION	SAMPLED DATE/TIME	RECEIVED	MATRIX
1	WP2899-1	13SLB060405	14 JUN 1430	15 JUN	SL
	WP2899-2	13SLB040506	14 JUN 1440		
	WP2899-3	13SLB020607	14 JUN 1455		

DETERMINATION	METHOD	QTY	PRICE	AMOUNT
Volatile Organics by 8260B	SW8260	3	85.00	255.00
Solids-Total Residue (TS)	CLP/CIP SO	3	0.00	0.00
Polynuclear Aromatic Hydrocarbons	EPA 8270	3	135.00	405.00
<b>TOTALS</b>		<b>3</b>	<b>220.00</b>	<b>660.00</b>

	LOG NUMBER	SAMPLE DESCRIPTION	SAMPLED DATE/TIME	RECEIVED	MATRIX
2	WP2899-4	13SLB010607	14 JUN 1515	15 JUN	

DETERMINATION	METHOD	QTY	PRICE	AMOUNT
Volatile Organics by 8260B	SW8260	1	85.00	85.00
Polynuclear Aromatic Hydrocarbons	EPA 8270	1	135.00	135.00
Total Combustible Organics	ASTM D2974	1	30.00	30.00
Wet Lab Subcontract		1	245.00	245.00
Solids-Total Residue (TS)	CLP/CIP SO	1	0.00	0.00
<b>TOTALS</b>		<b>1</b>	<b>495.00</b>	<b>495.00</b>

	LOG NUMBER	SAMPLE DESCRIPTION	SAMPLED DATE/TIME	RECEIVED	MATRIX
3	WP2899-5	13SLB010607D	14 JUN 1515	15 JUN	SL

DETERMINATION	METHOD	QTY	PRICE	AMOUNT
Volatile Organics by 8260B	SW8260	1	85.00	85.00
Polynuclear Aromatic Hydrocarbons	EPA 8270	1	135.00	135.00
Total Combustible Organics	ASTM D2974	1	30.00	30.00
Solids-Total Residue (TS)	CLP/CIP SO	1	0.00	0.00
Wet Lab Subcontract		1	135.00	135.00
<b>TOTALS</b>		<b>1</b>	<b>385.00</b>	<b>385.00</b>

LABORATORY ORDER CONTINUED ON PAGE 2

0000007  
APC 6/15/99

New England-ME Laboratory (207) 874-2400  
CONFIRMATION

Page 2

ORDER NO WP-2899

Project Manager: Andrea J. Colby

REPORT TO: PAUL CALLIGAN  
Tetra Tech NUS  
1401 Oven Park Dr., Suite 102  
Tallahassee, FL 32308

ORDER DATE: 06/15/99  
PHONE: 850/385-9899  
FAX: 850/385-9860  
DUE: 15 JUL  
FAC.ID: CNC CHARLESTON

INVOICE: ACCOUNTS PAYABLE  
TETRA TECH NUS, INC.  
FOSTER PLAZA 7, 661 ANDERSEN DR.  
PITTSBURGH, PA 15220

PHONE: 412/921-7090  
PO: N7912-P99264  
PROJECT: CTO#68

SAMPLED BY: R.FRANKLIN

DELIVERED BY: FEDEX

DISPOSE: AFTER 14 AUG

	LOG NUMBER	SAMPLE DESCRIPTION	SAMPLED DATE/TIME	RECEIVED	MATRIX
4	WP2899-6	13TL00101	14 JUN	15 JUN	SL

DETERMINATION	METHOD	QTY	PRICE	AMOUNT
Volatile Organics by 8260B	SW8260	1	85.00	85.00

ORDER NOTE: QC-IV NFESC-D  
DD(KAS007QC-DB3)  
CNC CHARLESTON

REPORT COPY: MS. LEE LECK  
TETRA TECH NUS  
FOSTER PLAZA 7  
661 ANDERSEN DR.  
PITTSBURGH, PA 15220  
REPORT & DISK

INVOICE: With Report

TOTAL ORDER AMOUNT \$1,625.00  
This is NOT an Invoice

Attn: KP/WEST.AJC(dw)

06-16 Please contact KATAHDIN ANALYTICAL SERVICES promptly if you have any questi

0000008  
h11.111111



# KATAHDIN ANALYTICAL SERVICES

## Summary of Report Notes

Report Note	Note Text
\$	'\$' flag denotes surrogate compound recovery is out of criteria. Re-extraction or re-analysis confirmed matrix interference.
O-13	Internal standard area(s) are out of criteria. Reanalysis confirmed matrix interference.



# KATAHDIN ANALYTICAL SERVICES

## Summary of Report Notes

Report Note	Note Text
\$	'\$' flag denotes surrogate compound recovery is out of criteria. Re-extraction or re-analysis confirmed matrix interference.
O-13	Internal standard area(s) are out of criteria. Reanalysis confirmed matrix interference.



CLIENT: PAUL CALLIGAN  
Tetra Tech NUS  
1401 Oven Park Dr., Suite 102  
Tallahassee, FL 32308

Lab Number : WP-2899-1  
Report Date: 08/05/99  
PO No. : N7912-P99264  
Project : CTO#68

WIC#: CNC CHARLESTON

REPORT OF ANALYTICAL RESULTS

Page 1 of 5

SAMPLE DESCRIPTION	MATRIX			SAMPLED BY		SAMPLED DATE RECEIVED	
13SLB060405	Solid			R.FRANKLIN		06/14/99	06/15/99
PARAMETER	RESULT	UNITS	DF	*PQL	METHOD	ANALYZED BY	NOTES
Solids-Total Residue (TS)	91.	wt %	1.0	0.10	CLP/CIP SOW	06/17/99 JF	1

\* PQL (Practical Quantitation Level) represents laboratory reporting limits and may not reflect sample-specific reporting limits. Sample-specific limits are indicated by results annotated with '<' values.  
(1) Sample Preparation on 06/16/99 by JF

08/05/99

LJO/baeajc(dw)/msm  
PF16TSS3  
CC: MS. LEE LECK  
TETRA TECH NUS  
FOSTER PLAZA 7  
661 ANDERSEN DR.



# KATAHDIN ANALYTICAL SERVICES

## REPORT OF ANALYTICAL RESULTS

**Client:** PAUL CALLIGAN  
Tetra Tech NUS  
1401 Owen Park Dr.  
Suite 102  
Tallahassee, FL 32308  
**Proj. ID:** CNC CHARLESTON

**Lab Number:** WP2899-1  
**SDG:** WP2899  
**Report Date:** 7/30/99  
**PO No. :** N7912-P99264  
**Project:** CTO#68  
**% Solids:** 92  
**Method:** EPA 8270  
**Date Analyzed:** 7/21/99

Sample Description	Matrix	Sampled Date	Rec'd Date	Ext. Date	Ext'd By	Ext. Method	Analyst
13SLB060405	SL	6/14/99	6/15/99	6/18/99	GST	SW3550	KRT

Compound	Result	Units	DF	Sample PQL	Method PQL
NAPHTHALENE	<360	ug/Kg	1.1	360	330
2-METHYLNAPHTHALENE	<360	ug/Kg	1.1	360	330
ACENAPHTHYLENE	<360	ug/Kg	1.1	360	330
ACENAPHTHENE	<360	ug/Kg	1.1	360	330
FLUORENE	<360	ug/Kg	1.1	360	330
PHENANTHRENE	<360	ug/Kg	1.1	360	330
ANTHRACENE	<360	ug/Kg	1.1	360	330
FLUORANTHENE	<360	ug/Kg	1.1	360	330
PYRENE	<360	ug/Kg	1.1	360	330
BENZO[A]ANTHRACENE	<360	ug/Kg	1.1	360	330
BENZO[A]PYRENE	<360	ug/Kg	1.1	360	330
BENZO[B]FLUORANTHENE	<360	ug/Kg	1.1	360	330
BENZO[K]FLUORANTHENE	<360	ug/Kg	1.1	360	330
INDENO[1,2,3-CD]PYRENE	<360	ug/Kg	1.1	360	330
DIBENZ[A,H]ANTHRACENE	<360	ug/Kg	1.1	360	330
BENZO[G,H,I]PERYLENE	<360	ug/Kg	1.1	360	330
NITROBENZENE-D5	73	%	1.1		
2-FLUOROBIPHENYL	76	%	1.1		
TERPHENYL-D14	86	%	1.1		

Port Notes:





# KATAHDIN ANALYTICAL SERVICES

## REPORT OF ANALYTICAL RESULTS

Client: PAUL CALLIGAN  
Tetra Tech NUS  
1401 Owen Park Dr.  
Suite 102  
Tallahassee, FL 32308

Proj. ID: CNC CHARLESTON

Lab Number: WP2899-1  
SDG: WP2899  
Report Date: 7/29/99  
PO No.: N7912-P99264  
Project: CTO#68  
% Solids: 92  
Method: SW8260  
Date Analyzed: 6/15/99

Sample Description	Matrix	Sampled Date	Rec'd Date	Ext. Date	Ext'd By	Ext. Method	Analyst
13SLB060405	SL	6/14/99	6/15/99	6/15/99	DJP	5030	DJP

Compound	Result	Units	DF	Sample PQL	Method PQL
BENZENE	<6	ug/Kg	1.2	6	5
TOLUENE	<6	ug/Kg	1.2	6	5
1,2-DIBROMOETHANE	<6	ug/Kg	1.2	6	5
ETHYLBENZENE	<6	ug/Kg	1.2	6	5
NAPHTHALENE	<6	ug/Kg	1.2	6	5
MTBE	<6	ug/Kg	1.2	6	5
TOTAL XYLENES	<6	ug/Kg	1.2	6	5
DIBROMOFLUOROMETHANE	\$178	%	1.2		
1,2-DICHLOROETHANE-D4	\$180	%	1.2		
TOLUENE-D8	\$148	%	1.2		
P-BROMOFLUOROBENZENE	105	%	1.2		

Report Notes: \$, O-13



# KATAHDIN ANALYTICAL SERVICES

## REPORT OF ANALYTICAL RESULTS

**Client:** PAUL CALLIGAN  
Tetra Tech NUS  
1401 Owen Park Dr.  
Suite 102  
Tallahassee, FL 32308  
**Proj. ID:** CNC CHARLESTON

**Lab Number:** WP2899-1RE  
**SDG:** WP2899  
**Report Date:** 7/29/99  
**PO No. :** N7912-P99264  
**Project:** CTO#68  
**% Solids:** 92  
**Method:** SW8260  
**Date Analyzed:** 6/15/99

Sample Description	Matrix	Sampled Date	Rec'd Date	Ext. Date	Ext'd By	Ext. Method	Analyst
13SLB060405	SL	6/14/99	6/15/99	6/15/99	DJP	5030	DJP

Compound	Result	Units	DF	Sample PQL	Method PQL
BENZENE	<6	ug/Kg	1.1	6	5
TOLUENE	<6	ug/Kg	1.1	6	5
1,2-DIBROMOETHANE	<6	ug/Kg	1.1	6	5
ETHYLBENZENE	<6	ug/Kg	1.1	6	5
NAPHTHALENE	<6	ug/Kg	1.1	6	5
MTBE	<6	ug/Kg	1.1	6	5
TOTAL XYLENES	<6	ug/Kg	1.1	6	5
DIBROMOFLUOROMETHANE	\$213	%	1.1		
1,2-DICHLOROETHANE-D4	\$213	%	1.1		
TOLUENE-D8	\$169	%	1.1		
p-BROMOFLUOROBENZENE	96	%	1.1		

Report Notes: \$, O-13



CLIENT: PAUL CALLIGAN  
Tetra Tech NUS  
1401 Oven Park Dr., Suite 102  
Tallahassee, FL 32308

Lab Number : WP-2899-2  
Report Date: 08/05/99  
PO No. : N7912-P99264  
Project : CTO#68

WIC#: CNC CHARLESTON

REPORT OF ANALYTICAL RESULTS

Page 2 of 5

SAMPLE DESCRIPTION	MATRIX			SAMPLED BY		SAMPLED DATE RECEIVED		
13SLB040506	Solid			R.FRANKLIN		06/14/99	06/15/99	
PARAMETER	RESULT	UNITS	DF	*PQL	METHOD	ANALYZED	BY	NOTES
Solids-Total Residue (TS)	97.	wt %	1.0	0.10	CLP/CIP SOW	06/17/99	JF	1

\* PQL (Practical Quantitation Level) represents laboratory reporting limits and may not reflect sample-specific reporting limits. Sample-specific limits are indicated by results annotated with '<' values.  
(1) Sample Preparation on 06/16/99 by JF

08/05/99

LJO/baeajc(dw)/msm  
PF16TSS3  
CC: MS. LEE LECK  
TETRA TECH NUS  
FOSTER PLAZA 7  
661 ANDERSEN DR.



# KATAHDIN ANALYTICAL SERVICES

## REPORT OF ANALYTICAL RESULTS

**Client:** PAUL CALLIGAN  
Tetra Tech NUS  
1401 Oven Park Dr.  
Suite 102  
Tallahassee, FL 32308  
  
**Proj. ID:** CNC CHARLESTON

**Lab Number:** WP2899-2  
**SDG:** WP2899  
**Report Date:** 7/30/99  
**PO No. :** N7912-P99264  
**Project:** CTO#68  
**% Solids:** 97  
**Method:** EPA 8270  
**Date Analyzed:** 7/21/99

Sample Description	Matrix	Sampled Date	Rec'd Date	Ext. Date	Ext'd By	Ext. Method	Analyst
13SLB040506	SL	6/14/99	6/15/99	6/18/99	GST	SW3550	KRT

Compound	Result	Units	DF	Sample PQL	Method PQL
NAPHTHALENE	<330	ug/Kg	1.0	330	330
2-METHYLNAPHTHALENE	<330	ug/Kg	1.0	330	330
ACENAPHTHYLENE	<330	ug/Kg	1.0	330	330
ACENAPHTHENE	<330	ug/Kg	1.0	330	330
FLUORENE	<330	ug/Kg	1.0	330	330
PHENANTHRENE	<330	ug/Kg	1.0	330	330
ANTHRACENE	<330	ug/Kg	1.0	330	330
FLUORANTHENE	<330	ug/Kg	1.0	330	330
PYRENE	<330	ug/Kg	1.0	330	330
BENZO[A]ANTHRACENE	<330	ug/Kg	1.0	330	330
CHRYSENE	<330	ug/Kg	1.0	330	330
BENZO[B]FLUORANTHENE	<330	ug/Kg	1.0	330	330
BENZO[K]FLUORANTHENE	<330	ug/Kg	1.0	330	330
BENZO[A]PYRENE	<330	ug/Kg	1.0	330	330
INDENO[1,2,3-CD]PYRENE	<330	ug/Kg	1.0	330	330
DIBENZO[A,H]ANTHRACENE	<330	ug/Kg	1.0	330	330
BENZO[G,H,I]PERYLENE	<330	ug/Kg	1.0	330	330
NITROBENZENE-D5	74	%	1.0		
2-FLUOROBIPHENYL	77	%	1.0		
TERPHENYL-D14	80	%	1.0		

Port Notes:



# KATAHDIN ANALYTICAL SERVICES

## REPORT OF ANALYTICAL RESULTS

**Client:** PAUL CALLIGAN  
Tetra Tech NUS  
1401 Owen Park Dr.  
Suite 102  
Tallahassee, FL 32308  
**Proj. ID:** CNC CHARLESTON

**Lab Number:** WP2899-2  
**SDG:** WP2899  
**Report Date:** 7/29/99  
**PO No. :** N7912-P99264  
**Project:** CTO#68  
**% Solids:** 97  
**Method:** SW8260  
**Date Analyzed:** 6/15/99

Sample Description	Matrix	Sampled Date	Rec'd Date	Ext. Date	Ext'd By	Ext. Method	Analyst
13SLB040506	SL	6/14/99	6/15/99	6/15/99	DJP	5030	DJP

Compound	Result	Units	DF	Sample PQL	Method PQL
BENZENE	<6	ug/Kg	1.3	6	5
TOLUENE	<6	ug/Kg	1.3	6	5
1,2-DIBROMOETHANE	<6	ug/Kg	1.3	6	5
ETHYLBENZENE	<6	ug/Kg	1.3	6	5
NAPHTHALENE	<6	ug/Kg	1.3	6	5
MTBE	<6	ug/Kg	1.3	6	5
TOTAL XYLENES	<6	ug/Kg	1.3	6	5
DIBROMOFLUOROMETHANE	\$193	%	1.3		
1,2-DICHLOROETHANE-D4	\$191	%	1.3		
TOLUENE-D8	\$165	%	1.3		
P-BROMOFLUOROBENZENE	104	%	1.3		

**Report Notes:** \$, O-13



# KATAHDIN ANALYTICAL SERVICES

## REPORT OF ANALYTICAL RESULTS

Client: PAUL CALLIGAN  
Tetra Tech NUS  
1401 Owen Park Dr.  
Suite 102  
Tallahassee, FL 32308  
Proj. ID: CNC CHARLESTON

Lab Number: WP2899-2RE  
SDG: WP2899  
Report Date: 7/29/99  
PO No.: N7912-P99264  
Project: CTO#68  
% Solids: 97  
Method: SW8260  
Date Analyzed: 6/15/99

Sample Description	Matrix	Sampled Date	Rec'd Date	Ext. Date	Ext'd By	Ext. Method	Analyst
13SLB040506	SL	6/14/99	6/15/99	6/15/99	DJP	5030	DJP

Compound	Result	Units	DF	Sample PQL	Method PQL
BENZENE	<6	ug/Kg	1.2	6	5
TOLUENE	<6	ug/Kg	1.2	6	5
1,2-DIBROMOETHANE	<6	ug/Kg	1.2	6	5
ETHYLBENZENE	<6	ug/Kg	1.2	6	5
NAPHTHALENE	<6	ug/Kg	1.2	6	5
MTBE	<6	ug/Kg	1.2	6	5
TOTAL XYLENES	<6	ug/Kg	1.2	6	5
DIBROMOFLUOROMETHANE	\$151	%	1.2		
1,2-DICHLOROETHANE-D4	\$176	%	1.2		
LUENE-D8	77	%	1.2		
P-BROMOFLUOROBENZENE	\$52	%	1.2		

port Notes: \$, O-13

CLIENT: PAUL CALLIGAN  
Tetra Tech NUS  
1401 Oven Park Dr., Suite 102  
Tallahassee, FL 32308

Lab Number : WP-2899-3  
Report Date: 08/05/99  
PO No. : N7912-P99264  
Project : CTO#68

WIC#: CNC CHARLESTON

REPORT OF ANALYTICAL RESULTS

Page 3 of 5

SAMPLE DESCRIPTION		MATRIX		SAMPLED BY		SAMPLED DATE RECEIVED	
13SLB020607		Solid		R.FRANKLIN		06/14/99	06/15/99
PARAMETER	RESULT	UNITS	DF	*PQL	METHOD	ANALYZED BY	NOTES
Solids-Total Residue (TS)	96.	wt %	1.0	0.10	CLP/CIP SOW	06/17/99 JF	1

\* PQL (Practical Quantitation Level) represents laboratory reporting limits and may not reflect sample-specific reporting limits. Sample-specific limits are indicated by results annotated with '<' values.  
(1) Sample Preparation on 06/16/99 by JF

08/05/99

LJO/baeajc(dw)/msm  
PF16TSS3  
CC: MS. LEE LECK  
TETRA TECH NUS  
FOSTER PLAZA 7  
661 ANDERSEN DR.



# KATAHDIN ANALYTICAL SERVICES

## REPORT OF ANALYTICAL RESULTS

Client: PAUL CALLIGAN  
Tetra Tech NUS  
1401 Oven Park Dr.  
Suite 102  
Tallahassee, FL 32308  
Proj. ID: CNC CHARLESTON

Lab Number: WP2899-3  
SDG: WP2899  
Report Date: 7/30/99  
PO No.: N7912-P99264  
Project: CTO#68  
% Solids: 96  
Method: EPA 8270  
Date Analyzed: 7/22/99

Sample Description	Matrix	Sampled Date	Rec'd Date	Ext. Date	Ext'd By	Ext. Method	Analyst
13SLB020607	SL	6/14/99	6/15/99	6/18/99	GST	SW3550	KRT

Compound	Result	Units	DF	Sample PQL	Method PQL
NAPHTHALENE	<330	ug/Kg	1.0	330	330
2-METHYLNAPHTHALENE	<330	ug/Kg	1.0	330	330
ACENAPHTHYLENE	<330	ug/Kg	1.0	330	330
ACENAPHTHENE	<330	ug/Kg	1.0	330	330
FLUORENE	<330	ug/Kg	1.0	330	330
PHENANTHRENE	<330	ug/Kg	1.0	330	330
ANTHRACENE	<330	ug/Kg	1.0	330	330
FLUORANTHENE	<330	ug/Kg	1.0	330	330
PYRENE	<330	ug/Kg	1.0	330	330
BENZO[A]ANTHRACENE	<330	ug/Kg	1.0	330	330
IRYSENE	<330	ug/Kg	1.0	330	330
BENZO[B]FLUORANTHENE	<330	ug/Kg	1.0	330	330
BENZO[K]FLUORANTHENE	<330	ug/Kg	1.0	330	330
BENZO[A]PYRENE	<330	ug/Kg	1.0	330	330
INDENO[1,2,3-CD]PYRENE	<330	ug/Kg	1.0	330	330
DIBENZ[A,H]ANTHRACENE	<330	ug/Kg	1.0	330	330
BENZO[G,H,I]PERYLENE	<330	ug/Kg	1.0	330	330
NITROBENZENE-D5	69	%	1.0		
2-FLUOROBIPHENYL	71	%	1.0		
TERPHENYL-D14	74	%	1.0		

port Notes:





# KATAHDIN ANALYTICAL SERVICES

## REPORT OF ANALYTICAL RESULTS

Client: PAUL CALLIGAN  
Tetra Tech NUS  
1401 Owen Park Dr.  
Suite 102  
Tallahassee, FL 32308

Proj. ID: CNC CHARLESTON

Lab Number: WP2899-3  
SDG: WP2899  
Report Date: 7/29/99  
PO No.: N7912-P99264  
Project: CTO#68  
% Solids: 96  
Method: SW8260  
Date Analyzed: 6/15/99

Sample Description	Matrix	Sampled Date	Rec'd Date	Ext. Date	Ext'd By	Ext. Method	Analyst
13SLB020607	SL	6/14/99	6/15/99	6/15/99	DJP	5030	DJP

Compound	Result	Units	DF	Sample PQL	Method PQL
BENZENE	<6	ug/Kg	1.2	6	5
TOLUENE	<6	ug/Kg	1.2	6	5
1,2-DIBROMOETHANE	<6	ug/Kg	1.2	6	5
ETHYLBENZENE	<6	ug/Kg	1.2	6	5
NAPHTHALENE	<6	ug/Kg	1.2	6	5
MTBE	<6	ug/Kg	1.2	6	5
TOTAL XYLENES	<6	ug/Kg	1.2	6	5
DIBROMOFLUOROMETHANE	\$201	%	1.2		
1,2-DICHLOROETHANE-D4	\$198	%	1.2		
TOLUENE-D8	\$169	%	1.2		
P-BROMOFLUOROBENZENE	91	%	1.2		

Report Notes: \$, O-13



# KATAHDIN ANALYTICAL SERVICES

## REPORT OF ANALYTICAL RESULTS

Client: PAUL CALLIGAN  
Tetra Tech NUS  
1401 Owen Park Dr.  
Suite 102  
Tallahassee, FL 32308

Proj. ID: CNC CHARLESTON

Lab Number: WP2899-3RE  
SDG: WP2899  
Report Date: 7/29/99  
PO No.: N7912-P99264  
Project: CTO#68  
% Solids: 96  
Method: SW8260  
Date Analyzed: 6/15/99

Sample Description	Matrix	Sampled Date	Rec'd Date	Ext. Date	Ext'd By	Ext. Method	Analyst
13SLB020607	SL	6/14/99	6/15/99	6/15/99	DJP	5030	DJP

Compound	Result	Units	DF	Sample POL	Method POL
BENZENE	<6	ug/Kg	1.2	6	5
TOLUENE	<6	ug/Kg	1.2	6	5
1,2-DIBROMOETHANE	<6	ug/Kg	1.2	6	5
ETHYLBENZENE	<6	ug/Kg	1.2	6	5
NAPHTHALENE	<6	ug/Kg	1.2	6	5
MTBE	<6	ug/Kg	1.2	6	5
TOTAL XYLENES	<6	ug/Kg	1.2	6	5
DIBROMOFLUOROMETHANE	\$234	%	1.2		
1,2-DICHLOROETHANE-D4	\$234	%	1.2		
TOLUENE-D8	\$193	%	1.2		
p-BROMOFLUOROBENZENE	86	%	1.2		

port Notes: \$, O-13

CLIENT: PAUL CALLIGAN  
Tetra Tech NUS  
1401 Oven Park Dr., Suite 102  
Tallahassee, FL 32308

Lab Number : WP-2899-4  
Report Date: 08/05/99  
PO No. : N7912-P99264  
Project : CIO#68

WICH#: CNC CHARLESTON

REPORT OF ANALYTICAL RESULTS

Page 4 of 5

SAMPLE DESCRIPTION	MATRIX			SAMPLED BY		SAMPLED DATE RECEIVED	
13SLB010607	Solid			R.FRANKLIN		06/14/99	06/15/99
PARAMETER	RESULT	UNITS	DF	*PQL	METHOD	ANALYZED BY	NOTES
Solids-Total Residue (TS)	93.	wt %	1.0	0.10	CLP/CIP SOW	06/17/99 JF	1
Total Combustible Organics	1.2	wt %	1.0	0.1	ASTM D2974-8	06/17/99 JF	1

\* PQL (Practical Quantitation Level) represents laboratory reporting limits and may not reflect sample-specific reporting limits. Sample-specific limits are indicated by results annotated with '<' values.

(1) Sample Preparation on 06/16/99 by JF

08/05/99

LJO/baeajc(dw)/msm  
PF16VSS2  
CC: MS. LEE LECK  
TETRA TECH NUS  
FOSTER PLAZA 7  
661 ANDERSEN DR.



# KATAHDIN ANALYTICAL SERVICES

## REPORT OF ANALYTICAL RESULTS

Client: PAUL CALLIGAN  
Tetra Tech NUS  
1401 Oven Park Dr.  
Suite 102  
Tallahassee, FL 32308  
Proj. ID: CNC CHARLESTON

Lab Number: WP2899-4  
SDG: WP2899  
Report Date: 7/30/99  
PO No.: N7912-P99264  
Project: CTO#68  
% Solids: 93  
Method: EPA 8270  
Date Analyzed: 7/21/99

Sample Description	Matrix	Sampled Date	Rec'd Date	Ext. Date	Ext'd By	Ext. Method	Analyst
13SLB010607	SL	6/14/99	6/15/99	6/18/99	GST	SW3550	KRT

Compound	Result	Units	DF	Sample PQL	Method PQL
NAPHTHALENE	<360	ug/Kg	1.1	360	330
2-METHYLNAPHTHALENE	<360	ug/Kg	1.1	360	330
ACENAPHTHYLENE	<360	ug/Kg	1.1	360	330
ACENAPHTHENE	<360	ug/Kg	1.1	360	330
FLUORENE	<360	ug/Kg	1.1	360	330
PHENANTHRENE	<360	ug/Kg	1.1	360	330
ANTHRACENE	<360	ug/Kg	1.1	360	330
FLUORANTHENE	<360	ug/Kg	1.1	360	330
PYRENE	<360	ug/Kg	1.1	360	330
NZO[A]ANTHRACENE	<360	ug/Kg	1.1	360	330
CHRYSENE	<360	ug/Kg	1.1	360	330
BENZO[B]FLUORANTHENE	<360	ug/Kg	1.1	360	330
BENZO[K]FLUORANTHENE	<360	ug/Kg	1.1	360	330
BENZO[A]PYRENE	<360	ug/Kg	1.1	360	330
INDENO[1,2,3-CD]PYRENE	<360	ug/Kg	1.1	360	330
DIBENZO[A,H]ANTHRACENE	<360	ug/Kg	1.1	360	330
BENZO[G,H,I]PERYLENE	<360	ug/Kg	1.1	360	330
NITROBENZENE-D5	69	%	1.1		
2-FLUOROBIPHENYL	70	%	1.1		
TERPHENYL-D14	79	%	1.1		

port Notes:



# KATAHDIN ANALYTICAL SERVICES

## REPORT OF ANALYTICAL RESULTS

Client: PAUL CALLIGAN  
Tetra Tech NUS  
1401 Owen Park Dr.  
Suite 102  
Tallahassee, FL 32308

Proj. ID: CNC CHARLESTON

Lab Number: WP2899-4  
SDG: WP2899  
Report Date: 7/29/99  
PO No. : N7912-P99264  
Project: CTO#68  
% Solids: 93  
Method: SW8260  
Date Analyzed: 6/16/99

Sample Description	Matrix	Sampled Date	Rec'd Date	Ext. Date	Ext'd By	Ext. Method	Analyst
13SLB010607	SL	6/14/99	6/15/99	6/16/99	KRT	5030	KRT

Compound	Result	Units	DF	Sample PQL	Method PQL
BENZENE	<6	ug/Kg	1.1	6	5
TOLUENE	<6	ug/Kg	1.1	6	5
1,2-DIBROMOETHANE	<6	ug/Kg	1.1	6	5
ETHYLBENZENE	<6	ug/Kg	1.1	6	5
NAPHTHALENE	<6	ug/Kg	1.1	6	5
MTBE	<6	ug/Kg	1.1	6	5
TOTAL XYLENES	<6	ug/Kg	1.1	6	5
DIBROMOFLUOROMETHANE	125	%	1.1		
1,2-DICHLOROETHANE-D4	128	%	1.1		
TOLUENE-D8	120	%	1.1		
P-BROMOFLUOROBENZENE	94	%	1.1		

Report Notes:



CLIENT: PAUL CALLIGAN  
Tetra Tech NUS  
1401 Oven Park Dr., Suite 102  
Tallahassee, FL 32308

Lab Number : WP-2899-5  
Report Date: 08/05/99  
PO No. : N7912-P99264  
Project : CTO#68

WICH#: CNC CHARLESTON

REPORT OF ANALYTICAL RESULTS

Page 5 of 5

SAMPLE DESCRIPTION	MATRIX			SAMPLED BY		SAMPLED DATE RECEIVED		
13SLB010607D	Solid			R.FRANKLIN		06/14/99	06/15/99	
PARAMETER	RESULT	UNITS	DF	*PQL	METHOD	ANALYZED	BY	NOTES
Solids-Total Residue (TS)	90.	wt %	1.0	0.10	CLP/CIP SOW	06/17/99	JF	1
Total Combustible Organics	2.1	wt %	1.0	0.1	ASTM D2974-8	06/17/99	JF	1

\* PQL (Practical Quantitation Level) represents laboratory reporting limits and may not reflect sample-specific reporting limits. Sample-specific limits are indicated by results annotated with '<' values.

(1) Sample Preparation on 06/16/99 by JF

08/05/99

LJO/baeajc(dw)/msm

PF16VSS2

CC: MS. LEE LECK

TETRA TECH NUS

FOSTER PLAZA 7

661 ANDERSEN DR.



# KATAHDIN ANALYTICAL SERVICES

## REPORT OF ANALYTICAL RESULTS

Client: PAUL CALLIGAN  
Tetra Tech NUS  
1401 Oven Park Dr.  
Suite 102  
Tallahassee, FL 32308

Proj. ID: CNC CHARLESTON

Lab Number: WP2899-5  
SDG: WP2899  
Report Date: 7/30/99  
PO No.: N7912-P99264  
Project: CTO#68  
% Solids: 90  
Method: EPA 8270  
Date Analyzed: 7/22/99

Sample Description	Matrix	Sampled Date	Rec'd Date	Ext. Date	Ext'd By	Ext. Method	Analyst
13SLB010607D	SL	6/14/99	6/15/99	6/18/99	GST	SW3550	KRT

Compound	Result	Units	DF	Sample PQL	Method PQL
NAPHTHALENE	<360	ug/Kg	1.1	360	330
2-METHYLNAPHTHALENE	<360	ug/Kg	1.1	360	330
ACENAPHTHYLENE	<360	ug/Kg	1.1	360	330
ACENAPHTHENE	<360	ug/Kg	1.1	360	330
FLUORENE	<360	ug/Kg	1.1	360	330
PHENANTHRENE	<360	ug/Kg	1.1	360	330
ANTHRACENE	<360	ug/Kg	1.1	360	330
FLUORANTHENE	<360	ug/Kg	1.1	360	330
PYRENE	<360	ug/Kg	1.1	360	330
BENZO[A]ANTHRACENE	<360	ug/Kg	1.1	360	330
CHRYSENE	<360	ug/Kg	1.1	360	330
BENZO[B]FLUORANTHENE	<360	ug/Kg	1.1	360	330
BENZO[K]FLUORANTHENE	<360	ug/Kg	1.1	360	330
BENZO[A]PYRENE	<360	ug/Kg	1.1	360	330
INDENO[1,2,3-CD]PYRENE	<360	ug/Kg	1.1	360	330
DIBENZ[A,H]ANTHRACENE	<360	ug/Kg	1.1	360	330
BENZO[G,H,I]PERYLENE	<360	ug/Kg	1.1	360	330
NITROBENZENE-D5	73	%	1.1		
2-FLUOROBIPHENYL	74	%	1.1		
TERPHENYL-D14	95	%	1.1		

Report Notes:



# KATAHDIN ANALYTICAL SERVICES

## REPORT OF ANALYTICAL RESULTS

Client: PAUL CALLIGAN  
Tetra Tech NUS  
1401 Owen Park Dr.  
Suite 102  
Tallahassee, FL 32308  
Proj. ID: CNC CHARLESTON

Lab Number: WP2899-5  
SDG: WP2899  
Report Date: 7/29/99  
PO No.: N7912-P99264  
Project: CTO#68  
% Solids: 90  
Method: SW8260  
Date Analyzed: 6/15/99

Sample Description	Matrix	Sampled Date	Rec'd Date	Ext. Date	Ext'd By	Ext. Method	Analyst
13SLB010607D	SL	6/14/99	6/15/99	6/15/99	DJP	5030	DJP

Compound	Result	Units	DF	Sample PQL	Method PQL
BENZENE	<7	ug/Kg	1.4	7	5
TOLUENE	<7	ug/Kg	1.4	7	5
1,2-DIBROMOETHANE	<7	ug/Kg	1.4	7	5
ETHYLBENZENE	<7	ug/Kg	1.4	7	5
NAPHTHALENE	<7	ug/Kg	1.4	7	5
MTBE	<7	ug/Kg	1.4	7	5
TOTAL XYLENES	<7	ug/Kg	1.4	7	5
DIBROMOFLUOROMETHANE	\$182	%	1.4		
1,2-DICHLOROETHANE-D4	\$183	%	1.4		
TOLUENE-D8	137	%	1.4		
P-BROMOFLUOROBENZENE	78	%	1.4		

Report Notes: \$, O-13





# KATAHDIN ANALYTICAL SERVICES

## REPORT OF ANALYTICAL RESULTS

Client: PAUL CALLIGAN  
Tetra Tech NUS  
1401 Owen Park Dr.  
Suite 102  
Tallahassee, FL 32308  
Proj. ID: CNC CHARLESTON

Lab Number: WP2899-5RE  
SDG: WP2899  
Report Date: 7/23/99  
PO No.: N7912-P99264  
Project: CTO#68  
% Solids: 90  
Method: SW8260  
Date Analyzed: 6/16/99

Sample Description	Matrix	Sampled Date	Rec'd Date	Ext. Date	Ext'd By	Ext. Method	Analyst
13SLB010607D	SL	6/14/99	6/15/99	6/16/99	KRT	5030	KRT

Compound	Result	Units	DF	Sample PQL	Method PQL
BENZENE	<6	ug/Kg	1.3	6	5
TOLUENE	<6	ug/Kg	1.3	6	5
1,2-DIBROMOETHANE	<6	ug/Kg	1.3	6	5
ETHYLBENZENE	<6	ug/Kg	1.3	6	5
NAPHTHALENE	<6	ug/Kg	1.3	6	5
MTBE	<6	ug/Kg	1.3	6	5
TOTAL XYLENES	<6	ug/Kg	1.3	6	5
DIBROMOFLUOROMETHANE	86	%	1.3		
1,2-DICHLOROETHANE-D4	92	%	1.3		
TOLUENE-D8	\$65	%	1.3		
P-BROMOFLUOROBENZENE	\$35	%	1.3		

Report Notes: \$



# KATAHDIN ANALYTICAL SERVICES

## REPORT OF ANALYTICAL RESULTS

Client: PAUL CALLIGAN  
Tetra Tech NUS  
1401 Owen Park Dr.  
Suite 102  
Tallahassee, FL 32308

Proj. ID: CNC CHARLESTON

Lab Number: WP2899-6  
SDG: WP2899  
Report Date: 7/29/99  
PO No.: N7912-P99264  
Project: CTO#68  
% Solids: -  
Method: SW8260  
Date Analyzed: 6/17/99

Sample Description	Matrix	Sampled Date	Rec'd Date	Ext. Date	Ext'd By	Ext. Method	Analyst
13TL00101	SL	6/14/99	6/15/99	6/17/99	KMC	5035	KMC

Compound	Result	Units	DF	Sample PQL	Method PQL
BENZENE	<5	ug/Kgdrywt	1.0	5	5
TOLUENE	<5	ug/Kgdrywt	1.0	5	5
1,2-DIBROMOETHANE	<5	ug/Kgdrywt	1.0	5	5
ETHYLBENZENE	<5	ug/Kgdrywt	1.0	5	5
NAPHTHALENE	<5	ug/Kgdrywt	1.0	5	5
MTBE	<5	ug/Kgdrywt	1.0	5	5
TOTAL XYLENES	<5	ug/Kgdrywt	1.0	5	5
DIBROMOFLUOROMETHANE	118	%	1.0		
1,2-DICHLOROETHANE-D4	123	%	1.0		
TOLUENE-D8	112	%	1.0		
p-BROMOFLUOROBENZENE	105	%	1.0		

Report Notes:

2A  
SOIL SEMIVOLATILE SYSTEM MONITORING COMPOUND RECOVERY

Lab Name: Katahdin Analytical Services

SDG No.: WP2899

Matrix: SOIL

Client Sample ID	Lab Sample ID	SMC1 (NBZ) #	SMC2 (FBP) #	SMC3 (TPH) #	Total Out
SBLK;061899	SBLK;061899	70	76	88	0
LCS;061899	LCS;061899	71	80	88	0
13SLB060405	WP2899-1	73	76	86	0
13SLB040506	WP2899-2	74	77	80	0
13SLB010607	WP2899-4	69	70	79	0
13SLB010607D	WP2899-5	73	74	95	0
13SLB020607	WP2899-3	69	71	74	0
13SLB040506MS	WP2899-2MS	72	73	81	0
13SLB040506MSD	WP2899-2MSD	80	76	87	0

**QC LIMITS**

SMC1 (NBZ)	=	NITROBENZENE-D5	(14-107)
SMC2 (FBP)	=	2-FLUOROBIPHENYL	(32-109)
SMC3 (TPH)	=	TERPHENYL-D14	(26-116)

# Column to be used to flag recovery value

\* Values are outside of QC limits



# KATAHDIN ANALYTICAL SERVICES

## REPORT OF ANALYTICAL RESULTS

Client: PAUL CALLIGAN  
Tetra Tech NUS  
1401 Oven Park Dr.  
Suite 102  
Tallahassee, FL 32308  
Proj. ID: CNC CHARLESTON

Lab Number: SBLK061899  
SDG: WP2899  
Report Date: 7/30/99  
PO No.: N7912-P99264  
Project: CTO#68  
% Solids: 100  
Method: EPA 8270  
Date Analyzed: 7/21/99

Sample Description	Matrix	Sampled Date	Rec'd Date	Ext. Date	Ext'd By	Ext. Method	Analyst
SBLK061899	SL	-	-	6/18/99	GST	SW3550	KRT

Compound	Result	Units	DF	Sample PQL	Method PQL
NAPHTHALENE	<330	ug/Kg	1.0	330	330
2-METHYLNAPHTHALENE	<330	ug/Kg	1.0	330	330
ACENAPHTHYLENE	<330	ug/Kg	1.0	330	330
ACENAPHTHENE	<330	ug/Kg	1.0	330	330
FLUORENE	<330	ug/Kg	1.0	330	330
PHENANTHRENE	<330	ug/Kg	1.0	330	330
ANTHRACENE	<330	ug/Kg	1.0	330	330
FLUORANTHENE	<330	ug/Kg	1.0	330	330
PYRENE	<330	ug/Kg	1.0	330	330
BENZO[A]ANTHRACENE	<330	ug/Kg	1.0	330	330
CHRYSENE	<330	ug/Kg	1.0	330	330
BENZO[B]FLUORANTHENE	<330	ug/Kg	1.0	330	330
BENZO[K]FLUORANTHENE	<330	ug/Kg	1.0	330	330
BENZO[A]PYRENE	<330	ug/Kg	1.0	330	330
INDENO[1,2,3-CD]PYRENE	<330	ug/Kg	1.0	330	330
DIBENZ[A,H]ANTHRACENE	<330	ug/Kg	1.0	330	330
BENZO[G,H,I]PERYLENE	<330	ug/Kg	1.0	330	330
NITROBENZENE-D5	70	%	1.0		
2-FLUOROBIPHENYL	76	%	1.0		
TERPHENYL-D14	88	%	1.0		

Report Notes:



## Method Blank and Laboratory Control Sample Results

Client:	Tetra Tech NUS
Work Order:	WP2899

	METHOD BLANK RESULTS							LABORATORY CONTROL SAMPLE RESULTS				
Parameter	Date of Prep	Date of Analysis	Units	Concentration Measured in Blank	Acceptance Range	Practical Quantitation Level**	Units	True Value	Measured Value	Percent Recovered	Acceptance Range (%)	Acceptance Range (mg/kg)
TS -Total Residue	16-Jun-99	17-Jun-99	wt %	< 0.10	< 0.10	0.10	wt %	90	90.0	100	80-120	
	16-Jun-99	17-Jun-99	wt %	< 0.10	< 0.10	0.10		NA			80-120	
TCO-Total Combustible Organics	16-Jun-99	17-Jun-99	wt %	< 0.10	< 0.10	0.10		NA			80-120	

\*\* Practical quantitation level is the lowest concentration measurable for samples with normal chemical and physical composition during routine laboratory operations.

## DATA QUALITY COMMENTS:

Results of all quality control measurements are within the laboratory and method specified acceptance range except as noted.



## Duplicate and Matrix Spike/Matrix Spike Duplicate Results

Client:	Tetra Tech NUS
Work Order:	WP2899

*DUPLICATE RESULTS**MATRIX SPIKE/MATRIX SPIKE DUPLICATE RESULTS*

Parameter	Sample No	Sample Measurements			Mean Conc	RPD (%)	Acceptance Range for RPD (%)	Concentration or Quantity				Matrix Spike Recovery (%)				RPD (%)	Acceptance Range (%)
		Units	Rep 1	Rep 2				Units	Sample Only	Spike Added	Sample +Spike Dup 1	Sample +Spike Dup 2	Sample +Spike Dup 1	Sample +Spike Dup 2	Acceptance Range (%)		
TS	WP2899-1	wt %	91.3	91.7	91.5	0.4	0-20	wt %	NA				75-125		0-20		
	WP2899-4	wt %	93.3	93.2	93.3	0.1	0-20	wt %	NA				75-125		0-20		
TCO	WP2899-4	wt %	1.20	1.26	1.23	4.9	0-20	wt %	NA				75-125		0-20		

RPD = Relative percent difference, which is the absolute value of the difference between two replicate results divided by the mean concentration then multiplied by 100%.

NA = Not applicable.

**DATA QUALITY COMMENTS:**

Results of all quality control measurements are within the laboratory or contract specified acceptance range except as noted. The laboratory does not use the sample duplicate and matrix spike acceptance ranges as acceptance criteria for a specific analysis. Sample duplicate and matrix spike data are used to evaluate method performance in the environmental sample matrix only. Please refer to LCS data for assessment of quality control for each parameter.

# Katahdin Analytical Services

## 8270 LCS Recovery Sheet

Lab File: I3868

Sample ID: LCS;061899

Date Run: 7/21/99

Analyst: KRT

Time Injected 3:44:00 AM

Matrix: SL

Compound Name	Spike Amt (ug/Kg)	Result (ug/Kg)	Rec (%)	Limits (%)
2-METHYLNAPHTHALENE	1667	1590	95	60-140
ACENAPHTHENE	1667	1310	79	60-140
ACENAPHTHYLENE	1667	1280	77	60-140
ANTHRACENE	1667	1400	84	60-140
BENZO[A]ANTHRACENE	1667	1360	82	60-140
BENZO[A]PYRENE	1667	1390	84	60-140
BENZO[B]FLUORANTHENE	1667	1410	85	60-140
BENZO[G,H,I]PERYLENE	1667	1350	81	60-140
BENZO[K]FLUORANTHENE	1667	1350	81	60-140
CHRYSENE	1667	1460	88	60-140
DIBENZ[A,H]ANTHRACENE	1667	1260	76	60-140
FLUORANTHENE	1667	1550	93	60-140
FLUORENE	1667	1450	87	60-140
INDENO[1,2,3-CD]PYRENE	1667	1350	81	60-140
NAPHTHALENE	1667	1170	70	60-140
PHENANTHRENE	1667	1520	91	60-140
PYRENE	1667	1400	84	60-140

\* Out of Limits

1

2000114

# Katahdin Analytical Services

## MS/MSD Report

Sample	File Name	Date Acquired	Time inj	Analyst	Matrix	Method
WP2899-2	I3884	7/21/99	10:10:00 PM	KRT	SL	8270_99
WP2899-2MS	I3909	7/22/99	9:08:00 PM	KRT	SL	8270_99
WP2899-2MSD	I3910	7/22/99	9:50:00 PM	KRT	SL	8270_99

Compound Name	Native (ug/Kg)	MS Spk Amount (ug/Kg)	MSD Spk Amount (ug/Kg)	MS Result (ug/Kg)	MSD Result (ug/Kg)	MS REC (%)	MSD REC (%)	Recovery Limits (%)	RPD (%)	RPD Limit (%)
CHRYSENE	0	1720	1720	1380	1440	80	84	60-140	4.2	50
ACENAPHTHENE	0	1720	1720	1180	1260	68	73	60-140	6.6	50
ACENAPHTHYLENE	0	1720	1720	1200	1200	70	70	60-140	0	50
ANTHRACENE	0	1720	1720	1290	1330	75	77	60-140	3.0	50
BENZO[A]ANTHRACENE	0	1720	1720	1220	1330	71	77	60-140	8.6	50
BENZO[A]PYRENE	0	1720	1720	1240	1300	72	76	60-140	4.7	50
BENZO[B]FLUORANTHENE	0	1720	1720	1270	1410	74	82	60-140	10	50
2-METHYLNAPHTHALENE	0	1720	1720	1410	1510	82	88	60-140	6.8	50
BENZO[K]FLUORANTHENE	0	1720	1720	1290	1440	75	83	60-140	11	50
PYRENE	0	1720	1720	1400	1600	81	93	60-140	13	50
DIBENZ[A,H]ANTHRACENE	0	1720	1720	1100	1190	64	69	60-140	7.9	50
FLUORANTHENE	0	1720	1720	1250	1220	73	71	60-140	2.4	50
FLUORENE	0	1720	1720	1280	1260	75	73	60-140	1.6	50
INDENO[1,2,3-CD]PYRENE	0	1720	1720	1180	1290	69	75	60-140	8.9	50
1-NAPHTHALENE	0	1720	1720	1160	1260	67	73	60-140	8.3	50
1-NANTHRENE	0	1720	1720	1330	1370	77	80	60-140	3.0	50
BENZO[G,H,I]PERYLENE	0	1720	1720	1130	1280	66	74	60-140	12	50



2A  
SOIL VOLATILE SYSTEM MONITORING COMPOUND RECOVERY

Lab Name: Katahdin Analytical Services

SDG No.: WP2899

Matrix: SOIL

Client Sample ID	Lab Sample ID	SMC1 (DFM) #	SMC2 (DCA) #	SMC3 (TOL) #	SMC4 (BFB) #	Total Out
13TL00101	WP2899-6	118	123	112	105	0
LCSZ15B	LCSZ15B	116	124	114	104	0
VLKZ15A	VLKZ15A	126	131	124	89	0
13SLB060405	WP2899-1	178 *	180 *	148 *	105	3
13SLB040506	WP2899-2	193 *	191 *	165 *	104	3
13SLB020607	WP2899-3	201 *	198 *	169 *	91	3
13SLB010607D	WP2899-5	182 *	183 *	137	78	2
13SLB060405RE	WP2899-1RE	213 *	213 *	169 *	96	3
13SLB040506RE	WP2899-2RE	151 *	176 *	77	52 *	3
13SLB020607RE	WP2899-3RE	234 *	234 *	193 *	86	3
LCSZ16A	LCSZ16A	101	112	107	103	0
VLKZ16B	VLKZ16B	125	127	120	105	0
13SLB010607	WP2899-4	125	128	120	94	0
13SLB010607DRE	WP2899-5RE	86	92	65 *	35 *	2

**QC LIMITS**

SMC1 (DFM) = DIBROMOFLUOROMETHANE (69-148)  
 SMC2 (DCA) = 1,2-DICHLOROETHANE-D4 (66-149)  
 SMC3 (TOL) = TOLUENE-D8 (68-147)  
 SMC4 (BFB) = P-BROMOFLUOROBENZENE (64-152)

# Column to be used to flag recovery value

\* Values are outside of QC limits



# KATAHDIN ANALYTICAL SERVICES

## REPORT OF ANALYTICAL RESULTS

Client: PAUL CALLIGAN  
Tetra Tech NUS  
1401 Owen Park Dr.  
Suite 102  
Tallahassee, FL 32308  
Proj. ID: CNC CHARLESTON

Lab Number: VBLKZ15A  
SDG: WP2899  
Report Date: 7/29/99  
PO No. : N7912-P99264  
Project: CTO#68  
% Solids: 100  
Method: SW8260  
Date Analyzed: 6/15/99

Sample Description	Matrix	Sampled Date	Rec'd Date	Ext. Date	Ext'd By	Ext. Method	Analyst
VBLKZ15A	SL	-	-	6/15/99	DJP	5030	DJP

Compound	Result	Units	DF	Sample PQL	Method PQL
BENZENE	<5	ug/Kg	1.0	5	5
TOLUENE	<5	ug/Kg	1.0	5	5
1,2-DIBROMOETHANE	<5	ug/Kg	1.0	5	5
ETHYLBENZENE	<5	ug/Kg	1.0	5	5
NAPHTHALENE	<5	ug/Kg	1.0	5	5
MTBE	<5	ug/Kg	1.0	5	5
TOTAL XYLENES	<5	ug/Kg	1.0	5	5
DIBROMOFLUOROMETHANE	126	%	1.0		
1,2-DICHLOROETHANE-D4	131	%	1.0		
TOLUENE-D8	124	%	1.0		
P-BROMOFLUOROBENZENE	89	%	1.0		

Report Notes:



# KATAHDIN ANALYTICAL SERVICES

## REPORT OF ANALYTICAL RESULTS

**Client:** PAUL CALLIGAN  
Tetra Tech NUS  
1401 Oven Park Dr.  
Suite 102  
Tallahassee, FL 32308

**Proj. ID:** CNC CHARLESTON

**Lab Number:** VBLKZ16B  
**SDG:** WP2899  
**Report Date:** 7/29/99  
**PO No. :** N7912-P99264  
**Project:** CTO#68  
**% Solids:** 100  
**Method:** SW8260  
**Date Analyzed:** 6/16/99

Sample Description	Matrix	Sampled Date	Rec'd Date	Ext. Date	Ext'd By	Ext. Method	Analyst
VBLKZ16B	SL	-	-	6/16/99	KRT	5030	KRT

Compound	Result	Units	DF	Sample PQL	Method PQL
BENZENE	<5	ug/Kg	1.0	5	5
TOLUENE	<5	ug/Kg	1.0	5	5
1,2-DIBROMOETHANE	<5	ug/Kg	1.0	5	5
ETHYLBENZENE	<5	ug/Kg	1.0	5	5
NAPHTHALENE	<5	ug/Kg	1.0	5	5
MTBE	<5	ug/Kg	1.0	5	5
TOTAL XYLENES	<5	ug/Kg	1.0	5	5
DIBROMOFLUOROMETHANE	125	%	1.0		
1,2-DICHLOROETHANE-D4	127	%	1.0		
TOLUENE-D8	120	%	1.0		
P-BROMOFLUOROBENZENE	105	%	1.0		

**Report Notes:**

**Katahdin Analytical Services**  
**8260 LCS Recovery Sheet**

**Lab File: Z1103**

**Sample ID: LCSZ15B**

**Date Run: 6/15/99**

**Analyst: KRT**

**Time Injected 9:02:00 AM**

**Matrix: SL**

<b>Compound Name</b>	<b>Spike Amt (ug/Kg)</b>	<b>Result (ug/Kg)</b>	<b>Rec (%)</b>	<b>Limits (%)</b>
1,2-DIBROMOETHANE	50	56.6	113	60-140
BENZENE	50	53.1	106	60-140
ETHYLBENZENE	50	62.4	125	60-140
MTBE	50	52.9	106	60-140
NAPHTHALENE	50	48.8	98	60-140
TOLUENE	50	55.2	110	60-140
TOTAL XYLENES	150	195	130	60-140

**\* Out of Limits**

*1*

# Katahdin Analytical Services

## 8260 LCS Recovery Sheet

Lab File: Z1119

Sample ID: LCSZ16A

Date Run: 6/16/99

Analyst: KRT

Time Injected 2:17:00 PM

Matrix: SL

Compound Name	Spike Amt (ug/Kg)	Result (ug/Kg)	Rec (%)	Limits (%)
1,2-DIBROMOETHANE	50	51.8	104	60-140
BENZENE	50	53.8	108	60-140
ETHYLBENZENE	50	64.3	129	60-140
MTBE	50	53.9	108	60-140
NAPHTHALENE	50	63.2	126	60-140
TOLUENE	50	52.5	105	60-140
TOTAL XYLENES	150	201	134	60-140

\* Out of Limits

1

2A  
WATER VOLATILE SYSTEM MONITORING COMPOUND RECOVERY

Lab Name: Katahdin Analytical Services

SDG No.: WP2899

Matrix: WATER

Client Sample ID	Lab Sample ID	SMC1 (DFM) #	SMC2 (DCA) #	SMC3 (TOL) #	SMC4 (BFB) #	Total Out
LCSS17A	LCS517A	112	112	114	116	0
VLKS17A	VLKS17A	113	119	112	103	0

**QC LIMITS**

SMC1 (DFM) = DIBROMOFLUOROMETHANE (75-129)  
SMC2 (DCA) = 1,2-DICHLOROETHANE-D4 (65-135)  
SMC3 (TOL) = TOLUENE-D8 (82-120)  
SMC4 (BFB) = P-BROMOFLUOROBENZENE (69-125)

# Column to be used to flag recovery value

\* Values are outside of QC limits

**Katahdin Analytical Services**  
**8260 LCS Recovery Sheet**

**Lab File: S5105**

**Sample ID: LCSS17A**

**Date Run: 6/17/99**

**Analyst: KMC**

**Time Injected 8:15:00 AM**

**Matrix: AQ**

<b>Compound Name</b>	<b>Spike Amt (ug/L)</b>	<b>Result (ug/L)</b>	<b>Rec (%)</b>	<b>Limits (%)</b>
1,2-DIBROMOETHANE	50	52.8	106	60-140
BENZENE	50	53.7	107	60-140
ETHYLBENZENE	50	59.4	119	60-140
MTBE	50	50.7	101	60-140
NAPHTHALENE	50	56.0	112	60-140
TOLUENE	50	56.6	113	60-140
TOTAL XYLENES	150	177	118	60-140

**\* Out of Limits**

*1*

**1000227**

**CASE NARRATIVE  
for  
Katahdin Analytical  
Westbrook, ME  
Former Charleston Naval Complex Site  
SDG #96485**

**July 8, 1999**

**Laboratory Identification:**

General Engineering Laboratories, Inc. (GEL)

**Mailing Address:**

P.O. Box 30712  
Charleston, SC 29417

**Express Mail Delivery and Shipping Address:**

2040 Savage Rd  
Charleston, SC 29414

**Telephone Number:**

(843) 556-8171

**Summary:**

**Sample receipt**

The samples from the former Charleston Naval Complex site arrived at General Engineering Laboratories, Inc., Charleston, SC on June 14, 1999, for environmental analyses. All sample containers arrived without any visible signs of tampering or breakage. The samples were delivered with chain of custody documentation and signatures.

The following samples were received by the laboratory:

<b><u>Laboratory Identification</u></b>	<b><u>Sample Description</u></b>
9906485-01	13SLB010607
9906485-02	13SLB010607D



## Case Narrative

Sample analyses were conducted using methodology as outlined in General Engineering Laboratories Standard Operating Procedures. Any technical or administrative problems during analysis, data review, and reduction are listed below by analytical parameter.

## Internal Chain of Custody:

Custody was maintained for all samples.

## Data Package:

The enclosed data package contains the following sections: Case Narrative, Chain of Custody, Cooler Receipt Checklist, and General Chemistry.

The following are definitions of reporting limits used at General Engineering Laboratories:

**DL**      Detection Limit: The minimum level of an analyte that can be determined (identified not quantified) with 99% confidence. The values are normally achieved by preparing and analyzing seven aliquots of laboratory water spiked 1 to 5 times the estimated MDL, taking the standard deviation and multiplying it against the one-tailed t-statistic at 99%. This computed value is then verified for reasonableness by repeating the study using the concentration found in the initial study, calculating an F-ratio, and computing the final limit. Sample specific preparation and dilution factors are applied to these limits when they are reported.

The detection limit is the minimum concentration of a substance that can be identified, measured, and reported with 99% confidence that the analyte concentration is above zero. It answers the question "Is It Present."

**QL**      Quantitation Limit: The lowest concentration that can be reliably achieved within specified limits of precision and accuracy during routine laboratory operating conditions. The QL is generally 5 to 10 times the MDL. However, it may be nominally chosen within these guidelines to simplify data reporting. For many analytes the QL analyte concentration is selected as the lowest non-zero standard in the calibration curve.

Sample QL's are highly matrix-dependent. Sample specific preparation and dilution factors are applied to these limits when they are reported.

The QL is always  $\geq$  DL.

This data package, to the best of my knowledge, is in compliance with technical and administrative requirements.

*Valerie S. Davis*

Valerie S. Davis  
Project Manager

fc:saic9906485%



# FEDERAL SAMPLE RECEIPT REVIEW

Client TEKRA TECH

Received by GCC

Date 6-14-99

GEL COOLER ☐ GEL POLY COOLER ☐ CLIENT COOLER ☐ OTHER ☒

SAMPLE REVIEW CRITERIA		YES	NO	COMMENTS/QUALIFIERS
1.	Were shipping containers received intact and sealed? If no, notify Project Manager	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
2.	Was the Shipment screened following the radiochemistry survey procedure (EPI SOP S-007)?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
	Were the survey results negative? If no, notify Project Manager	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
	Are any of the samples identified by the client as radioactive? If yes, did client provide RAD activity?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
3.	Were chain of custody documents included?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
4.	Were chain of custody documents completed correctly? (Ink, signed, match containers)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
5.	Were all sample containers properly labeled?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
6.	Were proper sample containers received?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
7.	Preserved samples checked for pH?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
8.	Were samples preserved correctly? If no, list samples & tests	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
9.	Shipping container temperature checked?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
10.	Was shipping container temperature within specifications (4 $\pm$ 2 $^{\circ}$ C) If no, notify Project Manager	<input checked="" type="checkbox"/>	<input type="checkbox"/>	YC
11.	Is temperature documented on the Chain of Custody?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
12.	Were samples received within holding time? if No, notify Project Manager	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
13.	Were VOA vials free of headspace?	<input type="checkbox"/>	<input type="checkbox"/>	
14.	ARCO# IF REQUIRED	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
15.	SDG# IF REQUIRED	<input checked="" type="checkbox"/>	<input type="checkbox"/>	

REVIEW Austin Hamilton DATE 6-14-99

SA - SEALS ATTACHED NSA NO SEALS ATTACHED

9906485%

**White = sample collector      Yellow = file      Pink = with report**

## **TOTAL ORGANIC CARBON**

**Analytical Batch Number:** 151981

**Analytical Method:** SW846 9060 Modified

<u>Laboratory Number</u>	<u>Sample Description</u>
9906485-01	13SLB010607
9906485-02	13SLB010607D
QC622750	Blank
QC622751	Duplicate of 9906242-03
QC622752	Post Spike of 9906242-03
QC622753	Laboratory Control Sample

### **Sample Preparation:**

All samples were prepared in accordance with accepted procedures.

### **Instrument Calibration:**

The instrument used was a Dohrmann DC-80 TOC analyzer. The instrument was properly calibrated.

### **Holding Time:**

All samples were analyzed within the required holding time.

### **Blanks:**

No target analytes were detected in the method blank above the required acceptance limit.

### **Spike Analyses:**

The post spike was run on the following Sample Number from another SDG.

9906242-03

All analyte recoveries in the post spike were within the required acceptance limits.

### **Laboratory Control Samples:**

All analyte recoveries in the laboratory control sample were within the required acceptance limits.

**Sample Duplicates:**

All sample duplicate results were within the required acceptance limits.

**Dilutions:**

None of the samples were diluted.

**Non Conformance Reports:**

There were no Nonconformance Reports associated with this batch.

The preceding narratives have been reviewed by: J. M. Lee Date: 07/02/99

**Case Narrative for  
KATA  
SDG# 96485**

**TOTAL PETROLEUM HYDROCARBONS**

**Analytical Batch Number:** 151905

**Analytical Method:** SW846 9071A

<u>Laboratory Number</u>	<u>Sample Description</u>
9906485-01	13SLB010607
9906485-02	13SLB010607D
QC622438	Blank
QC622439	Laboratory Control Sample
QC622440	Matrix spike of 9906485-01
QC622441	Duplicate of 9906485-01
QC622442	Matrix spike of 9906694-01
QC622443	Duplicate of 9906694-01

**Instrument Calibration:**

The instrument was properly calibrated.

**Holding Time:**

All samples were analyzed within the required holding time.

**Blanks:**

No target analytes were detected in the method blank above the required acceptance limit.

**Spike Analyses:**

The matrix spikes were run on the following Sample Numbers.

9906485-01 and 9906694-01

All analyte recoveries in the matrix spikes were within the required acceptance limits.

**Laboratory Control Samples:**

All analyte recoveries in the laboratory control sample were within the required acceptance limits.

**Sample Duplicates:**

All sample duplicate results were within the required acceptance limits.

**Dilutions:**

None of the samples were diluted.

**Non Conformance Reports:**

There were no Nonconformance Reports associated with this batch.



Client: Katahdin Analytical  
340 County Road  
Westbrook, Maine 04092  
Contact: Ms. Andrea Colby  
Project Description: Former Naval Complex

cc: KATA00199

Report Date: July 01, 1999

Page 1 of 2

Sample ID : 13SLB010607  
Lab ID : 9906485-01  
Matrix : Soil  
Date Collected : 06/14/99  
Date Received : 06/14/99  
Priority : Routine  
Collector : Client

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	M
<b>General Chemistry</b>											
Total Rec. Petro. Hydrocarbons		336	110	220	mg/kg	1.0	AAT	06/24/99	0900	151905	1
Evaporative Loss @ 105 C		9.00	1.00	1.00	wt%	1.0	GJ	06/15/99	1430	151462	2
Total Organic Carbon		7040	43.1	100	mg/kg	1.0	LS	06/23/99	1622	151981	3

M = Method	Method-Description
M 1	SW846 9071A
M 2	EPA 3550
M 3	SW846 9060 Modified

**Notes:**

The qualifiers in this report are defined as follows:

ND indicates that the analyte was not detected at a concentration greater than the detection limit.

J indicates presence of analyte at a concentration less than the reporting limit (RL) and greater than the detection limit (DL).

U indicates that the analyte was not detected at a concentration greater than the detection limit.

\* indicates that a quality control analyte recovery is outside of specified acceptance criteria.

Data reported in mass/mass units is reported as 'dry weight'.



**Client:** Karahdin Analytical  
340 County Road  
Westbrook, Maine 04092

**Project Description:** Former Naval Complex

Page 1 of 2

Sample ID	: 13SLB010607D
Lab ID	: 9906485-02
Matrix	: Soil
Date Collected	: 06/14/99
Date Received	: 06/14/99
Priority	: Routine
Collector	: Client

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	M
<b>General Chemistry</b>											
Total Rec. Petro. Hydrocarbons		276	106	212	mg/kg	1.0	AAT	06/24/99	0900	151905	1
Evaporative Loss @ 105 C		6.00	1.00	1.00	wt%	1.0	GJ	06/15/99	1430	151462	2
Total Organic Carbon		4990	43.1	100	mg/kg	1.0	LS	06/23/99	1647	151981	3

M = Method	Method-Description
M 1	SW846 9071A
M 2	EPA 3550
M 3	SW846 9060 Modified

The qualifiers in this report are defined as follows:

J indicates presence of analyte at a concentration less than the reporting limit (RL) and greater than the detection limit (DL).

U indicates that the analyte was not detected at a concentration greater than the detection limit.

\* indicates that a quality control analyte recovery is outside of specified acceptance criteria.

1. 2. 3. 4. 5. 6. 7. 8. 9. 10. 11. 12. 13. 14. 15. 16. 17. 18. 19. 20. 21. 22. 23. 24. 25. 26. 27. 28. 29. 30. 31. 32. 33. 34. 35. 36. 37. 38. 39. 40. 41. 42. 43. 44. 45. 46. 47. 48. 49. 50. 51. 52. 53. 54. 55. 56. 57. 58. 59. 60. 61. 62. 63. 64. 65. 66. 67. 68. 69. 70. 71. 72. 73. 74. 75. 76. 77. 78. 79. 80. 81. 82. 83. 84. 85. 86. 87. 88. 89. 90. 91. 92. 93. 94. 95. 96. 97. 98. 99. 100. 101. 102. 103. 104. 105. 106. 107. 108. 109. 110. 111. 112. 113. 114. 115. 116. 117. 118. 119. 120. 121. 122. 123. 124. 125. 126. 127. 128. 129. 130. 131. 132. 133. 134. 135. 136. 137. 138. 139. 140. 141. 142. 143. 144. 145. 146. 147. 148. 149. 150. 151. 152. 153. 154. 155. 156. 157. 158. 159. 160. 161. 162. 163. 164. 165. 166. 167. 168. 169. 170. 171. 172. 173. 174. 175. 176. 177. 178. 179. 180. 181. 182. 183. 184. 185. 186. 187. 188. 189. 190. 191. 192. 193. 194. 195. 196. 197. 198. 199. 200. 201. 202. 203. 204. 205. 206. 207. 208. 209. 210. 211. 212. 213. 214. 215. 216. 217. 218. 219. 220. 221. 222. 223. 224. 225. 226. 227. 228. 229. 230. 231. 232. 233. 234. 235. 236. 237. 238. 239. 240. 241. 242. 243. 244. 245. 246. 247. 248. 249. 250. 251. 252. 253. 254. 255. 256. 257. 258. 259. 260. 261. 262. 263. 264. 265. 266. 267. 268. 269. 270. 271. 272. 273. 274. 275. 276. 277. 278. 279. 280. 281. 282. 283. 284. 285. 286. 287. 288. 289. 290. 291. 292. 293. 294. 295. 296. 297. 298. 299. 300. 301. 302. 303. 304. 305. 306. 307. 308. 309. 310. 311. 312. 313. 314. 315. 316. 317. 318. 319. 320. 321. 322. 323. 324. 325. 326. 327. 328. 329. 330. 331. 332. 333. 334. 335. 336. 337. 338. 339. 340. 341. 342. 343. 344. 345. 346. 347. 348. 349. 350. 351. 352. 353. 354. 355. 356. 357. 358. 359. 360. 361. 362. 363. 364. 365. 366. 367. 368. 369. 370. 371. 372. 373. 374. 375. 376. 377. 378. 379. 380. 381. 382. 383. 384. 385. 386. 387. 388. 389. 390. 391. 392. 393. 394. 395. 396. 397. 398. 399. 400. 401. 402. 403. 404. 405. 406. 407. 408. 409. 410. 411. 412. 413. 414. 415. 416. 417. 418. 419. 420. 421. 422. 423. 424. 425. 426. 427. 428. 429. 430. 431. 432. 433. 434. 435. 436. 437. 438. 439. 440. 441. 442. 443. 444. 445. 446. 447. 448. 449. 450. 451. 452. 453. 454. 455. 456. 457. 458. 459. 460. 461. 462. 463. 464. 465. 466. 467. 468. 469. 470. 471. 472. 473. 474. 475. 476. 477. 478. 479. 480. 481. 482. 483. 484. 485. 486. 487. 488. 489. 490. 491. 492. 493. 494. 495. 496. 497. 498. 499. 500. 501. 502. 503. 504. 505. 506. 507. 508. 509. 510. 511. 512. 513. 514. 515. 516. 517. 518. 519. 520. 521. 522. 523. 524. 525. 526. 527. 528. 529. 530. 531. 532. 533. 534. 535. 536. 537. 538. 539. 540. 541. 542. 543. 544. 545. 546. 547. 548. 549. 550. 551. 552. 553. 554. 555. 556. 557. 558. 559. 560. 561. 562. 563. 564. 565. 566. 567. 568. 569. 570. 571. 572. 573. 574. 575. 576. 577. 578. 579. 580. 581. 582. 583. 584. 585. 586. 587. 588. 589. 590. 591. 592. 593. 594. 595. 596. 597. 598. 599. 600. 601. 602. 603. 604. 605. 606. 607. 608. 609. 610. 611. 612. 613. 614. 615. 616. 617. 618. 619. 620. 621. 622. 623. 624. 625. 626. 627. 628. 629. 630. 631. 632. 633. 634. 635. 636. 637. 638. 639. 640. 641. 642. 643. 644. 645. 646. 647. 648. 649. 650. 651. 652. 653. 654. 655. 656. 657. 658. 659. 660. 661. 662. 663. 664. 665. 666. 667. 668. 669. 670. 671. 672. 673. 674. 675. 676. 677. 678. 679. 680. 681. 682. 683. 684. 685. 686. 687. 688. 689. 690. 691. 692. 693. 694. 695. 696. 697. 698. 699. 700. 701. 702. 703. 704. 705. 706. 707. 708. 709. 710. 711. 712. 713. 714. 715. 716. 717. 718. 719. 720. 721. 722. 723. 724. 725. 726. 727. 728. 729. 730. 731. 732. 733. 734. 735. 736. 737. 738. 739. 740. 741. 742. 743. 744. 745. 746. 747. 748. 749. 750. 751. 752. 753. 754. 755. 756. 757. 758. 759. 760. 761. 762. 763. 764. 765. 766. 767. 768. 769. 770. 771. 772. 773. 774. 775. 776. 777. 778. 779. 780. 781. 782. 783. 784. 785. 786. 787. 788. 789. 790. 791. 792. 793. 794. 795. 796. 797. 798. 799. 800. 801. 802. 803. 804. 805. 806. 807. 808. 809. 810. 811. 812. 813. 814. 815. 816. 817. 818. 819. 820. 821. 822. 823. 824. 825. 826. 827. 828. 829. 830. 831. 832. 833. 834. 835. 836. 837. 838. 839. 840. 84

Data reported in mass/mass units is reported as 'dry weight'.



## QC Summary Report

Project Description: Former Naval Complex

cc: KATA00199

Lab. Sample ID: 9906485%

Report Date: July 02, 1999

Page 1 of 1

| Sample/Parameter               | Type          | Batch  | NOM   | Sample | Qual | QC    | Units | RPD% | REC% | Range         | Analyst | Date     | Time |
|--------------------------------|---------------|--------|-------|--------|------|-------|-------|------|------|---------------|---------|----------|------|
| <b>General Chemistry</b>       |               |        |       |        |      |       |       |      |      |               |         |          |      |
| QC622438                       | BLANK         | 151905 |       |        |      |       |       |      |      |               |         |          |      |
| Total Rec. Petro. Hydrocarbons |               |        |       |        |      | 105   | mg/kg |      |      |               | AAT     | 06/24/99 | 0900 |
| QC622441                       | 9906485-01DUP | 151905 |       |        |      |       |       |      |      |               |         |          |      |
| Total Rec. Petro. Hydrocarbons |               |        |       | 335    |      | 291   | mg/kg | 14.0 |      |               |         |          |      |
| QC622443                       | 9906694-01DUP | 151905 |       |        |      |       |       |      |      |               |         |          |      |
| Total Rec. Petro. Hydrocarbons |               |        |       | 536    |      | 464   | mg/kg | 14.3 |      |               |         |          |      |
| QC622439                       | LCS           | 151905 |       |        |      |       |       |      |      |               |         |          |      |
| Total Rec. Petro. Hydrocarbons |               |        | 10300 |        |      | 7600  | mg/kg |      | 73.8 | (70.0 - 116.) |         |          |      |
| QC622440                       | 9906485-01MS  | 151905 |       |        |      |       |       |      |      |               |         |          |      |
| Total Rec. Petro. Hydrocarbons |               |        | 12000 | 335    |      | 9890  | mg/kg |      | 79.8 | (70.0 - 130.) |         |          |      |
| QC622442                       | 9906694-01MS  | 151905 |       |        |      |       |       |      |      |               |         |          |      |
| Total Rec. Petro. Hydrocarbons |               |        | 18400 | 536    |      | 14000 | mg/kg |      | 73.4 | (70.0 - 130.) |         |          |      |
| QC620726                       | BLANK         | 151462 |       |        |      |       |       |      |      |               |         |          |      |
| Evaporative Loss @ 105 C       |               |        |       |        |      | 0.00  | wt%   |      |      |               | GJ      | 06/15/99 | 1430 |
| QC620724                       | 9906493-02DUP | 151462 |       |        |      |       |       |      |      |               |         |          |      |
| Evaporative Loss @ 105 C       |               |        |       | 16.0   |      | 17.0  | wt%   | 6.06 |      |               |         |          |      |
| QC620725                       | 9906485-02DUP | 151462 |       |        |      |       |       |      |      |               |         |          |      |
| Evaporative Loss @ 105 C       |               |        |       | 6.00   |      | 6.00  | wt%   | 0.00 |      |               |         |          |      |
| QC622750                       | BLANK         | 151981 |       |        |      |       |       |      |      |               |         |          |      |
| Total Organic Carbon           |               |        |       |        |      | 15.8  | mg/kg |      |      |               | LS      | 06/23/99 | 1415 |
| QC622751                       | 9906242-03DUP | 151981 |       |        |      |       |       |      |      |               |         |          |      |
| Total Organic Carbon           |               |        |       | 771    |      | 781   | mg/kg | 1.33 |      |               | LS      | 06/23/99 | 1525 |
| QC622753                       | LCS           | 151981 |       |        |      |       |       |      |      |               |         |          |      |
| Total Organic Carbon           |               |        | 3750  |        |      | 4520  | mg/kg |      | 121  | (88.0 - 130.) | LS      | 06/23/99 | 1410 |
| QC622752                       | 9906242-03PS  | 151981 |       |        |      |       |       |      |      |               |         |          |      |
| Total Organic Carbon           |               |        | 8890  | 771    |      | 10200 | mg/kg |      | 107  | (73.0 - 129.) | LS      | 06/23/99 | 1534 |

## Notes:

The qualifiers in this report are defined as follows:

J indicates presence of analyte &lt; RL (Report Limit)

U indicates presence of analyte &lt; DL (Detect Limit)

n/a indicates that spike recovery limits do not apply when  
sample concentration exceeds spike conc by a factor of 4 or more

S. W. COLE ENGINEERING, INC.

R E P O R T   O F   G R A D A T I O N  
ASTM C-117, C-136

Project No.      99008  
Date              06/17/1999

Project           MISCELLANEOUS  
Client            KATAHDIN ANALYTICAL  
Sample No.       25, SILTY SAND, WP-2899-4

| <u>Sieve Size</u> | <u>Percent Passing</u> | <u>PROJECT</u><br><u>Specifications %</u> |
|-------------------|------------------------|---|
| 1/4 "             | 100.0                  |   |
| # 4               | 99.9                   |   |
| # 10              | 99.8                   |   |
| # 20              | 99.5                   |   |
| # 40              | 98.6                   |   |
| # 60              | 94.1                   |   |
| # 100             | 37.9                   |   |
| # 200             | 12.4                   |   |

# HYDROMETER ANALYSIS

JOB NO.99-008

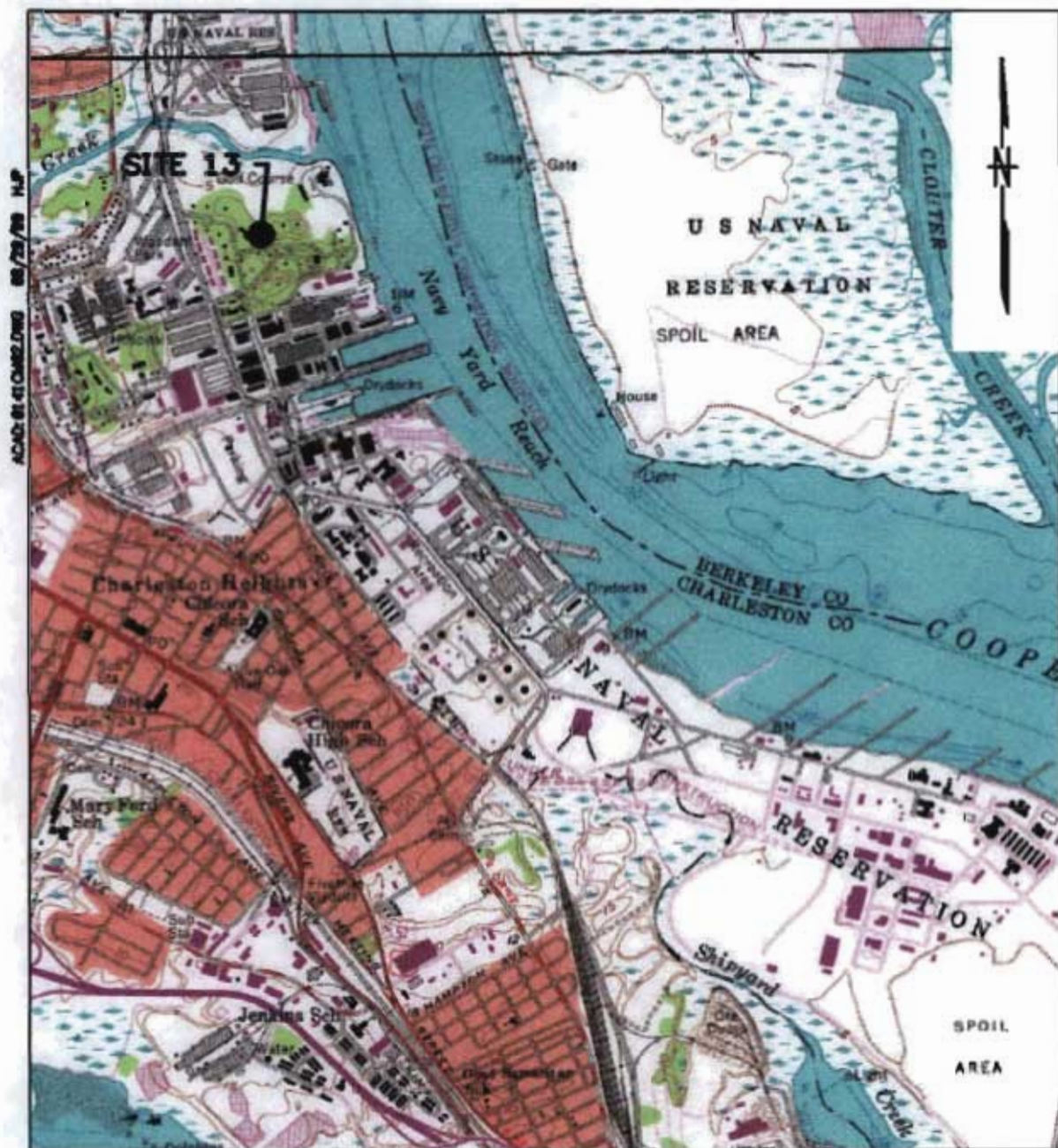
BORING NO.

SAMPLE NO.S-25

| DIAMETER     | % PASSING | READING  |
|--------------|-----------|----------|
| 3.371461E-02 | 10.19063  | 12       |
| 2.407677E-02 | 9.36884   | 11       |
| 1.710801E-02 | 8.957847  | 10.5     |
| 1.255436E-02 | 8.546951  | 10       |
| 8.970572E-03 | 7.642961  | 8.899999 |
| 6.396624E-03 | 6.90327   | 8        |
| 4.573024E-03 | 5.917082  | 6.8      |
| 3.262745E-03 | 5.095193  | 5.8      |
| 2.311206E-03 | 4.930796  | 5.6      |
| 1.353151E-03 | 3.615812  | 4        |

## **APPENDIX C**

### **TOPOGRAPHIC MAP WITH SITE LOCATION**



SOURCE: QUADRANGLE MAP SOUTH CAROLINA, REVISED 1879  
QUADRANGLE MAP NORTH CHARLESTON, REVISED, 1979

0 2000 4000  
SCALE IN FEET

DRAWN BY DATE  
HJP 8/20/99  
CHECKED BY DATE  
COST/SCHED-AREA  
SCALE  
AS NOTED



SITE LOCATION MAP  
SITE 13, BUILDING C, ZONE B  
CHARLESTON NAVAL COMPLEX  
NORTH CHARLESTON, SC

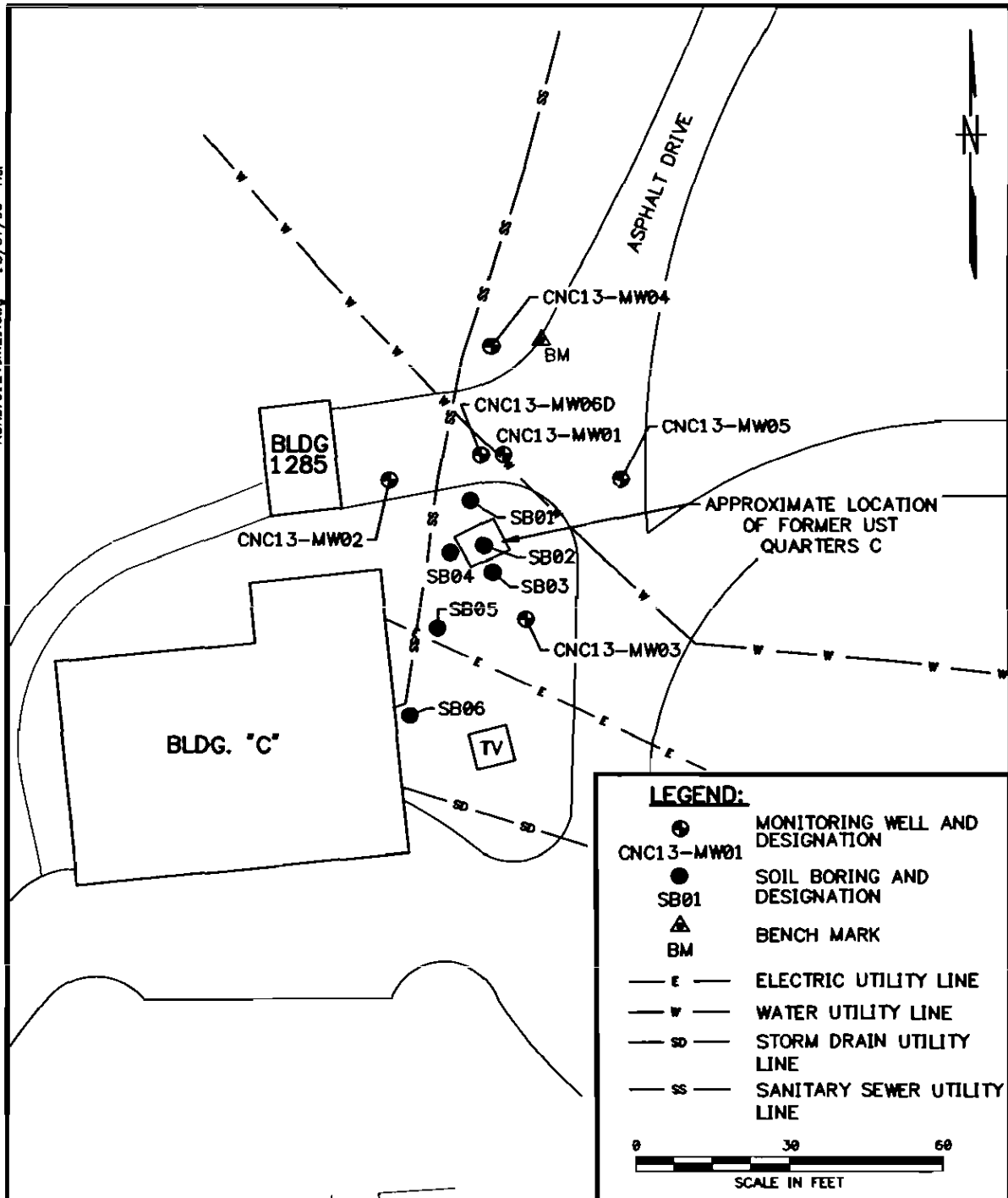
CONTRACT NO.  
N0141  
APPROVED BY DATE  
APPROVED BY DATE  
DRAWING NO.  
FIGURE 1  
REV.  
0

**APPENDIX D**

**SITE BASE MAPS**



ACAD:0124.m21.dwg 10/07/99 HJP



|                   |                 |  |   |           |                      |
|-------------------|-----------------|--|---|-----------|----------------------|
| DRAWN BY<br>HJP   | DATE<br>10/7/99 |  | <b>SITE MAP</b><br><b>SITE 13</b><br><b>ZONE B, CHARLESTON NAVAL COMPLEX</b><br><b>NORTH CHARLESTON, SOUTH CAROLINA</b> |           | CONTRACT NO.<br>0124 |
| CHECKED BY        | DATE            |  | APPROVED BY   | DATE      |                      |
| COST/SCHED-AREA   |                 |  | APPROVED BY   | DATE      |                      |
| SCALE<br>AS NOTED |                 |  | DRAWING NO.<br>FIGURE 1   | REV.<br>0 |                      |

